

From brianclarke01 at optusnet.com.au Tue Oct 1 01:54:00 2013  
From: brianclarke01 at optusnet.com.au (Brian Clarke)  
Date: Tue, 01 Oct 2013 15:54:00 +1000  
Subject: [BoatAnchors] HP 400H update...  
In-Reply-To: <1380563742.23845.YahooMailNeo@web161001.mail.bf1.yahoo.com>  
Message-ID: <9c26772546a2df56bad310b75cca93ac7cf68c42@webmail.optuszoo.com.au>

Hello John,?

Aluminium forms aluminium oxide as soon as it is exposed to air. Al oxide is an insulator. The simplest way to deal with the intermittent or faulty grounding is to solder a ground lead from one star point to all of the chassis grounding points. Having the star point nearest the power supply will give rise to the least ground loops  
Replacing the steel rivets with aluminium ones, even if you use Aluminox is not a long-term answer.

73 de Brian, VK2GCE.

Brian Clarke

BE, MBA, PhD, CPEng, FIEAust

MD, Clarke & Associates P/L

On Mon, 30 Sep 2013 10:55:42 -0700 (PDT), John said:

So what is one to do with any of the Hewlett Packard electronic stuff having an aluminum chassis and steel rivets? ?The inter-material corrosion and other incompatibilities bring lots of joy to us. ?It too wrestled with the HP 400 ACVM's that had tubes, and lost. ?

Some HP's I brought from the East work better out here, i.e. fewer intermittents.

?

--John Sehring ?VE6EQR-WB0EQ??nr Calgary, Alberta, Canada

-----  
Email sent using Optus Webmail

From wb3fau55 at neo.rr.com Tue Oct 1 04:50:06 2013  
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)  
Date: Tue, 1 Oct 2013 4:50:06 -0400  
Subject: [BoatAnchors] HQ-129X update  
Message-ID: <20131001085006.8UITT.44.root@cdptpa-web02-z01>

we have seen some recent 10m openings, I am able to copy beacon signals on this band. I have not replaced any caps. working better than expected, 73s Russ.

From jharper at secureoutcomes.net Tue Oct 1 14:35:25 2013  
From: jharper at secureoutcomes.net (Jack Harper)

Date: Tue, 01 Oct 2013 12:35:25 -0600  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
Message-ID: <mailman.709.1380652437.312.boatanchors@theporch.com>

Greetings to the List -

As I mentioned before, the 5R4 rectifier arced over to the chassis in the HX-500, which obliterated the tube socket.

I have a new 1 1/16 " diameter ceramic octal socket on the way from PartsExpress.

However, Scott had an interesting idea - Replace the usual 1 1/16" diameter socket with a 1 5/32" diameter socket.

Does anyone have such a thing? Pretty white ceramic would be nice... :)

1 5/32" diameter octal tube socket...

Regards,

Jack, W?YJ ("Friend to all Things Hammarlund - Even Transmitters!")  
Evergreen, Colorado

From wb0eq at yahoo.com Tue Oct 1 15:22:06 2013  
From: wb0eq at yahoo.com (John Sehring)  
Date: Tue, 1 Oct 2013 12:22:06 -0700 (PDT)  
Subject: [BoatAnchors] HP 400H update  
Message-ID: <1380655326.63562.YahooMailNeo@web161004.mail.bf1.yahoo.com>

Re aluminum chassis...

I'm presently wrestling with a house containing aluminum AC power wiring.?

And it's 14 ga. wire!? Bummer, you need to go two gauge steps down (larger wire) when using Al vs. Cu.? So #14 ga. Al is NOT sufficient for a 15 amp circuit.? I'm going to have to find the ampacity of #14 ga. Al wire & matching circuit breakers.? I've never seen any smaller than 15 amps.? I plan to label every receptacle in the house with a warning sticker.

House built in 1970, Al was a lot cheaper than Cu then.

Decades and 100's (1000's?) of house fires later, there are special fixtures (switches & receptacles) labeled "CoAlR".

Professional opinion is not uniform on even this.

Yes, it's the aluminum oxide that's the culprit.?

Also different coefficients of thermal expansion, Al vs. Cu.? In addition different mechanical properties, e.g. creep under load, and resistance to micro-embrittlement, etc.

So best info I have is to:

replace all electrical fixtures with CoAlR types; shine all Al wire connections to be made with very fine abrasive; use anti-oxide past (e.g. Penetrox) on all connection surfaces; make at least 3/4-turn wire loops; don't over-torque new fixture wire connector; recheck all screwed connections after a few months; where Al wires need to connect to each other, use appropriate wire nuts after doing polishing/pasting; where stranded Cu wire (e.g. in a ceiling fixture) must be connected to Al solid wire, use a short piece of Cu solid wire of same gauge as intermediary wire; use metal cover plates instead of plastic, the former conducts heat better & won't ever burn.

Half-way thru house, have found one receptacle in living room that could've burned...melted & blackened insulation, melted wire nuts, soot, loose screwed connections, etc.? A fire waiting to happen.? I think a space heater was used there.? Also found some very loose screwed connections elsewhere and some that just fell out of "push-in" type connection (the latter are dangerous and totally unacceptable to me).

Overall the workmanship on this house's wiring is poor & a fire hazard.? Past owner was an elderly widow, not likely she did any of this work!

(Sorry for digression.)

?

--John Sehring ?VE6EQR-WB0EQ??nr Calgary, Alberta, Canada

From kd5byb at kd5byb.net Tue Oct 1 16:26:41 2013

From: kd5byb at kd5byb.net (Ben Hall)

Date: Tue, 01 Oct 2013 15:26:41 -0500

Subject: [BoatAnchors] HP 400H Conclusion, more or less.

Message-ID: <524B3001.2080502@kd5byb.net>

Good afternoon all,

Spent some time over the past few nights wrestling with the 400H.

I used Arden's technique to show that all of the ground rivet connections were good - all were about 10 milliohms, more or less, so I ruled that out as a possible problem.

Many messages ago, Arden pointed out that in a closed loop system, a perturbation anywhere in the system will be seen "everywhere and more."

He mentioned it in reference to the power supply regulator, but it occurred to me that since the meter uses negative feedback, is it possible that a problem in the feedback loop is what is actually causing my power supply to look unstable?

Digging out the schematic...the feedback is pulled from two 1uF capacitors, shunted to ground by a 10 ohm resistor to ground.

On Richard Sears' blog:

[<http://richardsears.wordpress.com/2013/06/01/hp-vtvm-400h/>](http://richardsears.wordpress.com/2013/06/01/hp-vtvm-400h/)

He mentions that he had to replace C32 and C35, a pair of 1 uF capacitors that provide the feedback (shunted by 10 ohms to ground). So I think to myself...could a leaky capacitor here perhaps cause problems in the feedback loop?

I've tried everything else almost...so why not. A pair of 1 uF 630V tubular caps came from Mouser and in they went.

Now, the deflection "bounces" are usually less than half of a division, with only an occasional spike. The unit is still not inside its housing, so it is missing a whole lot of shielding.

So...the randomly "bouncy" needle is fixed. Now I've got a new issue...with the inputs shorted, the needle rests at about 0.05 volts on the 3 volt scale, regardless of range... Sigh... Time to look at the calibration procedure...maybe there is an adjustment. Or maybe I should stick it back in the case and see what happens...

thanks much and 73,  
ben, kd5byb

From kd5byb at kd5byb.net Tue Oct 1 16:53:15 2013  
From: kd5byb at kd5byb.net (Ben Hall)  
Date: Tue, 01 Oct 2013 15:53:15 -0500  
Subject: [BoatAnchors] HP 400H Conclusion, more or less.

In-Reply-To: <524B3001.2080502@kd5byb.net>  
References: <524B3001.2080502@kd5byb.net>  
Message-ID: <524B363B.4000307@kd5byb.net>

Pretty sure I know why I have the residual reading (needle not setting on zero with shorted input). HP manual notes that the +250 VDC supply should have less than 0.003 volts of ripple...mine's got over three times that...at least 0.01 volts p-p.

Guess it is time to replace the filter caps...

thanks much and 73,  
ben, kd5byb

On 10/1/2013 3:26 PM, Ben Hall wrote:

> So...the randomly "bouncy" needle is fixed. Now I've got a new  
> issue...with the inputs shorted, the needle rests at about 0.05 volts on  
> the 3 volt scale, regardless of range... Sigh... Time to look at the  
> calibration procedure...maybe there is an adjustment. Or maybe I should  
> stick it back in the case and see what happens...

From gumbear at pacbell.net Tue Oct 1 18:28:27 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Tue, 1 Oct 2013 15:28:27 -0700  
Subject: [BoatAnchors] HP 400H update  
References: <1380655326.63562.YahooMailNeo@web161004.mail.bf1.yahoo.com>  
Message-ID: <002001cebef9\$f6a389d0\$4301a8c0@KB6NAX>

> .....House built in 1970, Al was a lot cheaper than Cu then.

I'm assuming you are talking about aluminum only wire, not the later copper clad aluminum which in a house I owned I had no problems with except one case of a wire breaking where a wire stripper had creased the copper jacket. For aluminum wire there is a special goop that you coat the connections with to protect them from corrosion. If you can't find it at the hardware store ask an electrical contractor because service entry boxes use aluminum throughout.

Arden Allen  
KB6NAX

From gumbear at pacbell.net Tue Oct 1 18:59:55 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Tue, 1 Oct 2013 15:59:55 -0700  
Subject: [BoatAnchors] HP 400H Conclusion, more or less.

References: <524B3001.2080502@kd5byb.net>

Message-ID: <002101cebef9\$f74261e0\$4301a8c0@KB6NAX>

> ....Now I've got a new  
issue...with the inputs shorted, the needle rests at about 0.05 volts on  
the 3 volt scale, regardless of range... Sigh...

V1 is a cathode follower so no voltage gain and outside the feedback loop.  
So look at the input resistance to V2 in the 3 volt position, it may be the  
highest resistance the grid "sees." The higher the grid resistance the more  
noise. Try swapping V1 and V2 with other 6CB6's to see if it's just a case  
of a higher than average noise tube.

I don't doubt the filter caps have much higher impedance than when they were  
new meaning some overshoot on the leading edge of the saw tooth. The  
regulator circuit of this vacuum tube variety doesn't have a great amount of  
open loop gain so it needs pretty low ripple coming in. Also, the filter  
caps are the main stoppers of line spikes into the system.

Arden Allen  
KB6NAX

From gumbear at pacbell.net Tue Oct 1 19:39:43 2013

From: gumbear at pacbell.net (Arden Allen)

Date: Tue, 1 Oct 2013 16:39:43 -0700

Subject: [BoatAnchors] Richard Sears on the 400H

Message-ID: <005101cebeff\$84eff7a0\$4301a8c0@KB6NAX>

He starts with, "Another interesting item from HP, capable of measuring true  
RMS AC voltages ...."

Unfortunately Richard is incorrect. The 400D and H type meters are not true  
RMS meters, they are \*\*\*average responding\*\*\* meters that are only accurate  
measuring sine waves or wave shapes that contain the same voltage  
distribution over time such as broadband noise. Here is a good explanation  
of what a true RMS meter is as compared to an average responding meter:

<http://www.hpl.hp.com/hpjournal/pdfs/IssuePDFs/1964-01.pdf>

Arden Allen  
KB6NAX

It would be a horrible world if everything was on two legs.  
-Cleveland Amory

From w4rl at bellsouth.net Tue Oct 1 19:41:09 2013  
From: w4rl at bellsouth.net (Robert)  
Date: Tue, 01 Oct 2013 18:41:09 -0500  
Subject: [BoatAnchors] HP 400H update  
In-Reply-To: <002001cebef9\$f6a389d0\$4301a8c0@KB6NAX>  
References: <1380655326.63562.YahooMailNeo@web161004.mail.bf1.yahoo.com>  
<002001cebef9\$f6a389d0\$4301a8c0@KB6NAX>  
Message-ID: <524B5D95.20908@bellsouth.net>

Its called: Ox-Guard (TM) by GB Gardner Bender. An Anti-oxidant compound. Manufacturer's number: OX-400. Comes in a plastic applicator tube.

Robert W4RL Pensacola

On 10/1/2013 5:28 PM, Arden Allen wrote:

>> .....House built in 1970, Al was a lot cheaper than Cu then.  
> I'm assuming you are talking about aluminum only wire, not the later copper  
> clad aluminum which in a house I owned I had no problems with except one  
> case of a wire breaking where a wire stripper had creased the copper jacket.  
> For aluminum wire there is a special goop that you coat the connections with  
> to protect them from corrosion. If you can't find it at the hardware store  
> ask an electrical contractor because service entry boxes use aluminum  
> throughout.  
>  
> Arden Allen  
> KB6NAX  
>  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>  
>

From kd5byb at kd5byb.net Wed Oct 2 11:07:33 2013  
From: kd5byb at kd5byb.net (Ben Hall)  
Date: Wed, 02 Oct 2013 10:07:33 -0500  
Subject: [BoatAnchors] Can capacitor replacement  
Message-ID: <524C36B5.2060201@kd5byb.net>

Good morning all,

I did a little but of surfing last night looking for replacement can capacitors for my 400H. Dang - they are \$36 each. And I'm not real positive they are drop-in either.

Rebuilding the existing cans, while possible, is a pain in the rear.  
(been there, done that)

Then it occurred to me - could I design a printed circuit board that would mount like the original twist-lock can, yet use modern, radial electrolytic capacitors? And be of the same dimensions?

After spending some quality time with my CAD package I am very close to a design. It will accept four electrolytic caps (replacing a four element can), and have four swaged, hollow turret terminals for connection to the positive legs of the capacitors. (terminals are Keystone 1582-1)

It will mount to the twist-lock slots using (abusing?) four male 0.187" "quick fit" terminals. (Keystone 4900) They won't be able to be twisted to lock like the original, but they can be bent over to provide reasonable mechanical retention. They will \*\*\*not\*\*\* provide a good ground connection - so a wire will have to be soldered to one or more of the terminals to a suitable ground connection.

There are four areas of concern:

- 1) The design I've got is specific to the 400H and cans of the same dimensions (chassis cut-out size/shape, and locking slot dimensions). Different cans will require a different board.
- 2) The design is specific to a 16mm diameter maximum, 7mm lead-spacing electrolytic. I picked these dimensions because I have a good supply of these caps. ;)
- 3) Electrical insulation / isolation. While I've got a good bit of distance between the positive terminals and the ground connection, I do worry about arc-over. However, the isolation on the PC board between positive and ground is at least the lead spacing on the capacitors, so perhaps I'm worried over nothing. ;)
- 4) They certainly will not take the same abuse (bending leads around the posts, etc.) that a real can electro will take.

As soon as I get a design I am happy with...I will have some prototypes made and will report back.

thanks much and 73,  
ben, kd5byb

From gumbear at pacbell.net Wed Oct 2 15:45:23 2013



From: gumbear at pacbell.net (Arden Allen)  
Date: Wed, 2 Oct 2013 12:45:23 -0700  
Subject: [BoatAnchors] Richard Sears on the 400H  
References: <20717456.1380733918664.JavaMail.root@wamui-haziran.atl.sa.earthlink.net>  
Message-ID: <001b01cebfa7\$f218fa90\$4301a8c0@KB6NAX>

Thankyou for the correction, Scott. My knowledge basket has yet to overflow. I don't remember how I came by that but my guess is it was assumed from a less exact reading in the past.

What's a PITA, besides being a wheat based food?

Arden Allen  
KB6NAX

----- Original Message -----

From: spr at earthlink.net  
To: Arden Allen  
Sent: Wednesday, October 02, 2013 10:11 AM  
Subject: Re: [BoatAnchors] Richard Sears on the 400H

Hi Arden,

Sorry to disagree, but true Gaussian noise has a different amplitude distribution than sine waves. It will read 1.1 dB lower than it should on an average responding meter.

This is not a large error, but large enough to be a PITA for calibrated sound pressure level setting in cinemas. It works well enough--long story--but isn't exact.

/scott

-----Original Message-----

>From: Arden Allen <gumbear at pacbell.net>  
>Sent: Oct 1, 2013 4:39 PM  
>To: "Old Tube Radios (new)" <boatanchors at minime.theporch.com>  
>Subject: [BoatAnchors] Richard Sears on the 400H  
>  
>He starts with, "Another interesting item from HP, capable of measuring true  
>RMS AC voltages ...."  
>  
>Unfortunately Richard is incorrect. ....

From kd5byb at kd5byb.net Wed Oct 2 16:47:00 2013

From: kd5byb at kd5byb.net (Ben Hall)  
Date: Wed, 02 Oct 2013 15:47:00 -0500  
Subject: [BoatAnchors] Can capacitor replacement  
In-Reply-To: <524C36B5.2060201@kd5byb.net>  
References: <524C36B5.2060201@kd5byb.net>  
Message-ID: <524C8644.2040609@kd5byb.net>

Good afternoon all,

Exported two views of what I've got in mind...

View from on the top side of the chassis:  
<<http://www.kd5byb.net/HP400/Assem2.jpg>>

View from the bottom side of the chassis. To secure the board, one tab in each slot can be folded flat. The other can then be used as a ground tie point:  
<<http://www.kd5byb.net/HP400/Assem1.jpg>>

thanks much and 73,  
ben, kd5byb

From knjhanlon at msn.com Wed Oct 2 18:11:51 2013  
From: knjhanlon at msn.com (JAMES HANLON)  
Date: Wed, 2 Oct 2013 16:11:51 -0600  
Subject: [BoatAnchors] Need DX-100 or VF1 frequency control shaft  
Message-ID: <BLU173-W543EE4A6DEADCAD5315E6A0160@phx.gbl>

Y'all,

This is a bit of a long shot, but I must give it a try. I was working on my DX-100 today. The vfo is intermittent even though all DC voltages to the tube are OK, so I was in the process of removing the vfo itself from the main chassis so that I could get into it for more trouble shooting. That involves removing the DX-100 front panel. As I was lifting the panel off the front of the chassis, the little shaft that the vfo Frequency control knob mounts to fell out of its bushing onto the floor. After I put the panel down I went looking for that shaft. I feel a bit like the woman in the Bible who lost a coin, and who lit her lamp and swept the house looking for it. Except she found it but I have not found my shaft. It is a 1/4 inch shaft, short, and I think it has a grooved wheel or bushing on one end that mates with the vfo dial and drives it. I think the same shaft must also exist in the Heath VF-1 vfo.

If anyone has a parts-queen DX-100 or VF-1, would you please look to see if you can find that frequency control shaft for me. I will, of course continue to search every nook and cranny around my bench. But if someone could help me out

with a replacement, I sure would appreciate it.

Thanks,

Jim Hanlon, W8KGI  
w8kgi at arrl.net

From arc5 at ix.netcom.com Thu Oct 3 08:02:51 2013  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Thu, 3 Oct 2013 07:02:51 -0500  
Subject: [BoatAnchors] People Smarter Than Me: Feeding a DS-1077  
Message-ID: <E20A2EA5BF5C446CBEBBC3596AACC9E6A@CompaqSR5710F>

To the many people smarter than me on computers and  
itty-bitty chips:  
Here's a Maxim DS-1077 Programmable Oscillator  
I want to use in a boatanchor project:  
<https://www.sparkfun.com/products/9089>  
"The DS1077 features a 2-wire serial interface that allows in-circuit  
on-the-fly programming of the programmable prescalers (P0 & P1) and divider  
(N) with the desired values being stored in NV (EEPROM) memory."  
The datasheets have lots of good info, but as always the writers  
make assumptions that I'm smarter than I am.  
Programming I can figure-out.... I think.  
They've got some published "C" code and there's bound  
to be a freeware compiler out there.

What I need to know:  
I have a computer with an RS-232 port.  
I have a chip with two pins.  
Someone please draw me a hardware diagram of how  
I'm supposed to hook these two together.

73 DE Dave AB5S

From kd5byb at kd5byb.net Thu Oct 3 15:26:31 2013  
From: kd5byb at kd5byb.net (Ben Hall)  
Date: Thu, 03 Oct 2013 14:26:31 -0500  
Subject: [BoatAnchors] People Smarter Than Me: Feeding a DS-1077  
In-Reply-To: <E20A2EA5BF5C446CBEBBC3596AACC9E6A@CompaqSR5710F>  
References: <E20A2EA5BF5C446CBEBBC3596AACC9E6A@CompaqSR5710F>  
Message-ID: <524DC4E7.3040900@kd5byb.net>

Hi Dave,

I was hoping to see someone smarter than me reply to your question below. So, get out that big grain of salt... ;)

Problem #1: true RS-232 has voltage levels of up to +/- 25 VDC. The little Maxim oscillator is a 5 volt device. You need a level translator to shift the RS-232 voltage levels down to the TTL levels that can be tolerated by the chip.

SparkFun has reasonably good write-up on the difference between TTL and RS-232 here:

<<https://www.sparkfun.com/tutorials/215>>

After quickly scanning the datasheet, I believe in your case, you only need to send information to the DS-1077 and do not need to receive data from it. So the level shifter could be nothing more than a resistor and a zener clamp diode.

Problem #2: The datasheet calls the interface "two wire serial." It has a data line and a clock line. Again, I'm way outside my knowledge here, but I do not believe RS-232 can talk to two wire serial even after the level problem is solved.

The DS-1077 datasheet reinforces this - the SDA (serial data) pin on the DS-1077 is bi-directional using just one pin - RS-232 has independent receive and transmit lines, it's not bi-directional over one line.

This is further bolstered by the fact that the C-code example provided by SparkFun is for the ATmega168 microcontroller.

In the PIC microcontroller world, I'm used to seeing devices like this state that they use the I2C protocol. Wikipedia notes that two-wire serial is I2C minus a certain feature called "clock stretching", where a slave device holds SCL (serial clock) high to tell the sender of the data (master) that it cannot accept any more data and to wait.

I've looked thru the C code provided by SparkFun, and it appears that it is a control interface for the DS-1077. The easiest thing may be to purchase an ATmega168 development board, and use the C-code as the interface between your PC and the DS-1077? But...it isn't clear to me looking at SparkFun's ATmega168 board (which has some bad reviews, BTW) how it interfaces with your PC.

Wish I could be of more help!

thanks and 73,

ben, kd5byb

On 10/3/2013 7:02 AM, David Stinson wrote:

> To the many people smarter than me on computers and  
> itty-bitty chips:  
> Here's a Maxim DS-1077 Programmable Oscillator  
> I want to use in a boatanchor project:  
> <https://www.sparkfun.com/products/9089>  
> "The DS1077 features a 2-wire serial interface that allows in-circuit  
> on-the-fly programming of the programmable prescalers (P0 & P1) and  
> divider (N) with the desired values being stored in NV (EEPROM) memory."  
> The datasheets have lots of good info, but as always the writers  
> make assumptions that I'm smarter than I am.  
> Programming I can figure-out.... I think.

From kd5byb at kd5byb.net Thu Oct 3 16:10:27 2013

From: kd5byb at kd5byb.net (Ben Hall)

Date: Thu, 03 Oct 2013 15:10:27 -0500

Subject: [BoatAnchors] HP 400H Conclusion, more or less.

In-Reply-To: <524B3001.2080502@kd5byb.net>

References: <524B3001.2080502@kd5byb.net>

Message-ID: <524DCF33.1050003@kd5byb.net>

Good afternoon all,

After declaring victory more or less, I noticed last night I was still getting occasional drop-outs of the DC voltage at the reservoir capacitor.

Of course, each "drop out" caused needle deflection - often minor, sometimes 1/4 scale.

Earlier, using a piece of tubing, I thought I heard noises coming from the rectifier tube sounding much like a Geiger counter which also corresponded to needle deflection.

This afternoon, two NIB 6AX5's arrived. One went into the 400H almost immediately. The new tube doesn't make the little clicks and the corresponding needle deflection is gone. :)

So...add a bum 6AX5 rectifier to the list of issues solved in the 400H. ;)

I still have too much ripple on the regulated line. Filter cap change-out is pending.

thanks much and 73,

ben, kd5byb

From wb3fau55 at neo.rr.com Wed Oct 2 19:06:55 2013  
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)  
Date: Wed, 2 Oct 2013 19:06:55 -0400  
Subject: [BoatAnchors] Need DX-100 or VF1 frequency control shaft  
In-Reply-To: <BLU173-W543EE4A6DEADCAD5315E6A0160@phx.gbl>  
Message-ID: <20131002230656.BQGIE.5903.root@cdptpa-web02-z01>

Sorry Jim I don't have the part, but interested in what is the problem. I had my VFO out of the DX-100 3 times to get it stabilized. I did not remove the front panel. This should be a fun BA adventure...Russ.

---- JAMES HANLON <knjhanlon at msn.com> wrote:

> Y'all,

>

> This is a bit of a long shot, but I must give it a try. I was working on my DX-100 today. The vfo is intermittent even though all DC voltages to the tube are OK, so I was in the process of removing the vfo itself from the main chassis so that I could get into it for more trouble shooting. That involves removing the DX-100 front panel. As I was lifting the panel off the front of the chassis, the little shaft that the vfo Frequency control knob mounts to fell out of its bushing onto the floor. After I put the panel down I went looking for that shaft. I feel a bit like the woman in the Bible who lost a coin, and who lit her lamp and swept the house looking for it. Except she found it but I have not found my shaft. It is a 1/4 inch shaft, short, and I think it has a grooved wheel or bushing on one end that mates with the vfo dial and drives it. I think the same shaft must also exist in the Heath VF-1 vfo.

>

> If anyone has a parts-queen DX-100 or VF-1, would you please look to see if you can find that frequency control shaft for me. I will, of course continue to search every nook and cranny around my bench. But if someone could help me out with a replacement, I sure would appreciate it.

>

> Thanks,

>

> Jim Hanlon, W8KGI

> w8kgi at arrl.net

>

>

>

>

> -----  
> BoatAnchors mailing list

> BoatAnchors at theporch.com

> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From k4oah at mindspring.com Wed Oct 2 11:50:57 2013  
From: k4oah at mindspring.com (Garey Barrell)  
Date: Wed, 02 Oct 2013 11:50:57 -0400  
Subject: [BoatAnchors] Can capacitor replacement  
In-Reply-To: <524C36B5.2060201@kd5byb.net>  
References: <524C36B5.2060201@kd5byb.net>  
Message-ID: <524C40E1.8050002@mindspring.com>

Have you checked with Tom at <www.hayseedhamfest.com>??

He makes drop in replacements for just about any twist-lok style of capacitor. He will make one for the 400H.

73, Garey - K40AH  
Glen Allen, VA

Drake 2-B, 2-C/2-NT, 4-A, 4-B, C-Line  
and TR-4/C Service Supplement CDs  
<www.k4oah.com>

Ben Hall wrote:

> Good morning all,  
>  
> I did a little but of surfing last night looking for replacement can capacitors  
for my 400H. Dang - they are \$36  
> each. And I'm not real positive they are drop-in either.  
>  
> Rebuilding the existing cans, while possible, is a pain in the rear. (been  
there, done that)  
>

From talgarth at comcast.net Thu Oct 3 19:03:06 2013  
From: talgarth at comcast.net (Gary Hitchner)  
Date: Thu, 3 Oct 2013 19:03:06 -0400  
Subject: [BoatAnchors] People Smarter Than Me: Feeding a DS-1077  
In-Reply-To: <524DC4E7.3040900@kd5byb.net>  
References: <E20A2EA5BF5C446CBEB3596AACC9E6A@CompaqSR5710F>  
<524DC4E7.3040900@kd5byb.net>  
Message-ID: <000601cec08c\$b8a4de10\$29ee9a30\$@net>

Brian,

In my opinion Ben has suggested the right path, find a microcontroller that supports or has examples of a I2C interface available. You can check out Basic Stamp, Microchip- (PIC), Arduino etc. The ARRL has a tech book available to learn about the PIC microcontrollers. You may need a microcontroller that has a development board available to make the wires,

(hardware interface) easy to connect.

After you learn the programming window and how to talk to the microcontroller you need to program the registers in the osc chip, to generate the frequencies you want. I have not looked at this data sheet, but most need to receive a address then data of so many bits that are all predefined.

You can use examples of code for the particular microcontroller to modify to send the data for your osc chip. Yes, there is a learning curve here, but interesting once you started.

This is a big picture idea of what you need to do to program your chip, direct with a PC probably would not be a easy solution, unless Maxim has evaluation software available, even then you may need a eval board that has the osc chip on it that the PC would talk to.

Are there any other users of this osc chip in similar projects to yours?

Gary

WA20MY

-----Original Message-----

From: BoatAnchors [mailto:boatanchors-bounces at theporch.com] On Behalf Of Ben Hall

Sent: Thursday, October 03, 2013 3:27 PM

To: boatanchors at theporch.com

Subject: Re: [BoatAnchors] People Smarter Than Me: Feeding a DS-1077

Hi Dave,

I was hoping to see someone smarter than me reply to your question below. So, get out that big grain of salt... ;)

Problem #1: true RS-232 has voltage levels of up to +/- 25 VDC. The little Maxim oscillator is a 5 volt device. You need a level translator to shift the RS-232 voltage levels down to the TTL levels that can be tolerated by the chip.

SparkFun has reasonably good write-up on the difference between TTL and RS-232 here:

<<https://www.sparkfun.com/tutorials/215>>

After quickly scanning the datasheet, I believe in your case, you only need to send information to the DS-1077 and do not need to receive data from it.



So the level shifter could be nothing more than a resistor and a zener clamp diode.

Problem #2: The datasheet calls the interface "two wire serial." It has a data line and a clock line. Again, I'm way outside my knowledge here, but I do not believe RS-232 can talk to two wire serial even after the level problem is solved.

The DS-1077 datasheet reinforces this - the SDA (serial data) pin on the DS-1077 is bi-directional using just one pin - RS-232 has independent receive and transmit lines, it's not bi-directional over one line.

This is further bolstered by the fact that the C-code example provided by SparkFun is for the ATmega168 microcontroller.

In the PIC microcontroller world, I'm used to seeing devices like this state that they use the I2C protocol. Wikipedia notes that two-wire serial is I2C minus a certain feature called "clock stretching", where a slave device holds SCL (serial clock) high to tell the sender of the data (master) that it cannot accept any more data and to wait.

I've looked thru the C code provided by SparkFun, and it appears that it is a control interface for the DS-1077. The easiest thing may be to purchase an ATmega168 development board, and use the C-code as the interface between your PC and the DS-1077? But...it isn't clear to me looking at SparkFun's ATmega168 board (which has some bad reviews, BTW) how it interfaces with your PC.

Wish I could be of more help!

thanks and 73,  
ben, kd5byb

On 10/3/2013 7:02 AM, David Stinson wrote:

> To the many people smarter than me on computers and itty-bitty chips:  
> Here's a Maxim DS-1077 Programmable Oscillator I want to use in a  
> boatanchor project:  
> <https://www.sparkfun.com/products/9089>  
> "The DS1077 features a 2-wire serial interface that allows in-circuit  
> on-the-fly programming of the programmable prescalers (P0 & P1) and  
> divider (N) with the desired values being stored in NV (EEPROM) memory."  
> The datasheets have lots of good info, but as always the writers make  
> assumptions that I'm smarter than I am.  
> Programming I can figure-out.... I think.

-----  
BoatAnchors mailing list

BoatAnchors at theporch.com  
<https://minime.theporch.com/mailman/listinfo/boatanchors>

From gumbear at pacbell.net Thu Oct 3 18:59:42 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Thu, 3 Oct 2013 15:59:42 -0700  
Subject: [BoatAnchors] HP 400H Conclusion, more or less.  
References: <524B3001.2080502@kd5byb.net> <524DCF33.1050003@kd5byb.net>  
Message-ID: <001a01cec08d\$40058b70\$4301a8c0@KB6NAX>

> .....This afternoon, two NIB 6AX5's arrived. One went into the 400H almost immediately. The new tube doesn't make the little clicks and the corresponding needle deflection is gone. :) .....

Ah yes, the occult noisy rectifier tube Crappy welding job in that one. Who woulda thot!

Arden Allen  
KB6NAX

The great pleasure of a dog is that you  
may make a fool of yourself with him  
and not only will he not scold you,  
but he will make a fool of himself too.  
-Samual Butler

From arc5 at ix.netcom.com Fri Oct 4 10:49:56 2013  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Fri, 4 Oct 2013 09:49:56 -0500  
Subject: [BoatAnchors] People Smarter Than Me: Feeding a DS-1077  
Message-ID: <40193685771B43CBB6D6C72A47AFFF4E@CompaqSR5710F>

I did receive your insights and thank you all!  
I've just been buried in work and am way behind in dealing with the mail.  
I may need to consider another device, but learning how to work with these is going to be useful in the future.  
TNX OM ES 73 DE Dave AB5S

From john.shriver at gmail.com Fri Oct 4 11:41:01 2013  
From: john.shriver at gmail.com (John Shriver)  
Date: Fri, 4 Oct 2013 11:41:01 -0400

Subject: [BoatAnchors] People Smarter Than Me: Feeding a DS-1077  
In-Reply-To: <40193685771B43CBB6D6C72A47AFFF4E@CompaqSR5710F>  
References: <40193685771B43CBB6D6C72A47AFFF4E@CompaqSR5710F>  
Message-ID: <CAEv8c7HZRVd6QcVXcjajvXvQSKTvy4kk6CFtaY=Ay6Lj-hh6PA@mail.gmail.com>

I don't think that there is actually any lower limit on the clock rate for I2C. So if you are really patient and careful, you can probably run the I2C bus with a pair of toggle switches, and maybe LED's (say through a 7406 open-collector inverter) to monitor the current state of each line. The toggle switches would be to ground, pull-up resistors would pull the bus high.

On Fri, Oct 4, 2013 at 10:49 AM, David Stinson <arc5 at ix.netcom.com> wrote:

> I did receive your insights and thank you all!  
> I've just been buried in work and am way behind in  
> dealing with the mail.  
> I may need to consider another device, but learning  
> how to work with these is going to be useful in the future.  
> TNX OM ES 73 DE Dave AB5S  
>  
> -----\*\*-----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> [https://minime.theporch.com/\\*\\*mailman/listinfo/boatanchors](https://minime.theporch.com/**mailman/listinfo/boatanchors)<<https://minime.theporch.com/mailman/listinfo/boatanchors>>  
>

From wb3fau55 at neo.rr.com Thu Oct 3 18:35:26 2013  
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)  
Date: Thu, 3 Oct 2013 18:35:26 -0400  
Subject: [BoatAnchors] Need DX-100 or VF1 frequency control shaft  
In-Reply-To: <BLU173-W543EE4A6DEADCAD5315E6A0160@phx.gbl>  
Message-ID: <20131003223526.MS4SC.13609.root@cdptpa-web02-z01>

have you got any answers Jim? I had my VFO out of the DX-100 on 3 different occasions. I never pulled the front panel. I would blame the bandswitch 1st. Russ.

---- JAMES HANLON <knjhanlon at msn.com> wrote:

> Y'all,  
>  
> This is a bit of a long shot, but I must give it a try. I was working on my DX-100 today. The vfo is intermittent even though all DC voltages to the tube are OK, so I was in the process of removing the vfo itself from the main chassis so that I could get into it for more trouble shooting. That involves removing the DX-100 front panel. As I was lifting the panel off the front of the chassis, the

little shaft that the vfo Frequency control knob mounts to fell out of its bushing onto the floor. After I put the panel down I went looking for that shaft. I feel a bit like the woman in the Bible who lost a coin, and who lit her lamp and swept the house looking for it. Except she found it but I have not found my shaft. It is a 1/4 inch shaft, short, and I think it has a grooved wheel or bushing on one end that mates with the vfo dial and drives it. I think the same shaft must also exist in the Heath VF-1 vfo.

>

> If anyone has a parts-queen DX-100 or VF-1, would you please look to see if you can find that frequency control shaft for me. I will, of course continue to search every nook and cranny around my bench. But if someone could help me out with a replacement, I sure would appreciate it.

>

> Thanks,

>

> Jim Hanlon, W8KGI

> w8kgi at arrl.net

>

>

>

>

> -----  
> BoatAnchors mailing list

> BoatAnchors at theporch.com

> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From gumbear at pacbell.net Fri Oct 4 22:47:46 2013

From: gumbear at pacbell.net (Arden Allen)

Date: Fri, 4 Oct 2013 19:47:46 -0700

Subject: [BoatAnchors] People Smarter Than Me: Feeding a DS-1077

References: <40193685771B43CBB6D6C72A47AFF4E@CompaqSR5710F>

<CAEv8c7HZRVd6QcVXcjajvXvQSKTvy4kk6CFtaY=Ay6Lj-hh6PA@mail.gmail.com>

Message-ID: <000c01cec175\$4c6847c0\$4301a8c0@KB6NAX>

> I don't think that there is actually any lower limit on the clock rate for I2C. So if you are really patient and careful, you can probably run the I2C bus with a pair of toggle switches, and maybe LED's (say through a 7406 open-collector inverter) to monitor the current state of each line. The toggle switches would be to ground, pull-up resistors would pull the bus high.

I used to build dumb controllers for testing relatively simple IC chips at wafer level and final package sort. I manually loaded data into an eprom and then clocked it out to run the tests via an assortment of logic and analog circuits. Just push the start button and a clock running a counter sequences the address bus on the eprom. The data coming out was the commands to the test circuits. For longer than one clock cycle tests the

data was repeated for more than one address for the time required. The last command returned all circuits to the start cycle and stopped the counter. Dumb but simple to build and program.

Arden Allen  
KB6NAX

Adopt a shelter dog,  
save an innocent life,  
and make a friend forever =:-)

From gumbear at pacbell.net Sat Oct 5 16:32:34 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Sat, 5 Oct 2013 13:32:34 -0700  
Subject: [BoatAnchors] sheet metal screws  
Message-ID: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>

So much stuff put together with these screws, so hard to find in 100 piece quantities: You can get what you want on Amazon and eBay if you buy 10,000, 25,000, etc.

#6 x 1/4" Type B (blunt point) hex washer head zinc plated sheet metal screw

#6 x 5/8" ....

#6 x 1" ....

Where can one purchase these in small quantities?

Arden Allen  
KB6NAX

The average dog is a nicer person than  
the average person. -Andy Rooney

From jharper at secureoutcomes.net Wed Oct 9 11:17:12 2013  
From: jharper at secureoutcomes.net (Jack Harper)  
Date: Wed, 09 Oct 2013 09:17:12 -0600  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
Message-ID: <mailman.162.1381603270.17076.boatanchors@theporch.com>

Greetings to the List...

Sunday night, I replaced the 5R4 HV rectifier

socket that was blitzed by the arc-over of last week with a marvelous NOS ceramic Amphenol octal socket date coded (I think) 48-08 :). Thank You Arden for that socket.

I do not expect any more flash-overs in the future with that new socket.

I powered the HX-500 up with the new socket and new 5R4 (the old one had HV pin-8 partially melted) and all appears well.

The high voltage for the twin 6146 finals reads +805VDC. Interesting to me is that is slightly higher than the +780VDC of the old blitzed tube - but, still within 3% of the Hammarlund stated value. I wonder why that slight voltage increase with a different rectifier tube - a bit less plate resistance perhaps with the new tube variance??

Anyway, for anyone interested --

Under-chassis photo of the new ceramic socket: <http://frobenius.com/HX-500h.jpg>

Above-chassis photo of the new ceramic socket: <http://frobenius.com/HX-500i.jpg> (the empty hole to the left of the socket is for one of the 12AX4 rectifiers removed by the Hammarlund mod that replaced those tubes with solid state diodes for instant bias voltage at start up).

Above-chassis photo with the new 5R4: <http://frobenius.com/HX-500j.jpg>

Also, a photo of the HX-500 on its side on the work bench: <http://frobenius.com/HX-500g.jpg> (here, I am observing/measuring the output of the 60KHz Hartley oscillator. Nice sine wave measured at 60.008Khz after an hour warm up.)

After I got the power supply back to life, I started in on resolving the eight or so tube pin voltage errors that I found before the 5R4 blew up...

The first one is the two stage 12AX7 audio amplifier fed by the microphone. Even though I am CW only, I am doing my best to get this

transmitter back in good shape - all of it.

Please see <http://frobenius.com/audio.pdf> for a partial schematic of the audio stages...

A Hammarlund modification was completed by someone years ago to "reduce audio distortion" - these mods are NOT on the schematic:

- (a) A 3900-ohm resistor inserted between pin-3 (cathode) of the 12AX7 first section and ground.
- (b) R32 (4.7-meg) replaced with a 470K resistor.
- (c) C45 (1000uuf) capacitor replaced with a .01uf disc ceramic.

The problem is that Hammarlund states pin voltages as follows:

(12AX7 V5)

Pin-1 (plate): 93VDC stated value

...but, I see 175VDC.

I checked all of the resistors in the area and they are fine (R32, new 3.9K, R33, R36, R40). The +300VDC line measures at +302VDC. In addition, Pin-6 (plate on second 12AX7 section) is +177.

Hammarlund also says the voltage on Pin-6/plate should be 155VDC.

None of that makes sense to me - it is a simple (I think) voltage divider - maybe more is going on. +300VDC in through a 47K and then splits through two 220K resistors to end up at the stated +155 at one plate and +93 at the other?????

I see +175VDC and +177VDC, which \*does\* make sense - I think.

However, the real problem is that I began to feed a low-voltage 3Khz signal (from a generator) into the MIC input to see if the stage works, but first noticed a strange thing on the oscilloscope at the middle pin of the AUDIO LEVEL potentiometer (R38) before I connected the signal generator -

There is a 150 volt ac signal there running at about 4Khz - it is not a sine wave but a broad flat topped wave with fairly sharp downward peaks (drops) every 250us. Note that this is with NO signal injected at MIC. The thing appears to be oscillating at 150VAC by itself...

Question: Am I seeing things here on the 'scope  
- is that signal real?? I think it is. I am feeding the scope through a 0.01 cap.

I am CW only and don't even own a microphone - otherwise, I would try that.

Thoughts?

I absolutely do NOT trust the Hammarlund documentation and I think their stated pin voltages on Pin-1 and Pin-6 of the 12AX7 are, as usual, wrong - However, that does not explain the apparent oscillation that I am seeing.

Also, as an interesting aside I measured the frequency drift of the 60Khz oscillator over time  
- see

<http://frobenius.com/60Khz%20oscillator.pdf> (I used a 1980's HP frequency counter).

At cold startup, the 60Khz is actually 60.118 and remains there for about five minutes and then begins to slowly drift down as the transmitter warms up. After thirty-minutes, it is very close (60.020Khz) and it finally stabilizes at 60.008Khz after an hour.

Anyway, the drift decays in a classic exponential (surprise! surprise!).

I have always known, of course, that tube gear drifts a few KC at startup and you should allow perhaps ten-minutes before operating - and an hour before doing any real tweaking - now, I see the data. Fun stuff - and it keeps me out of the bars at night and makes me known far and wide amongst the female of the species as a "Hot Date" :)

Regards to the List - and I appreciate, as always, input.



Jack, W?YJ  
Evergreen, Colorado

From jharper at secureoutcomes.net Wed Oct 9 12:43:19 2013  
From: jharper at secureoutcomes.net (Jack Harper)  
Date: Wed, 09 Oct 2013 10:43:19 -0600  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter... (2)  
Message-ID: <mailman.170.1381603290.17076.boatanchors@theporch.com>

I forgot to mention...

The Good News is that after the HV flash over on the 5R4 rectifier tube, I don't think that I destroyed the power transformer.

After replacing the blitzed socket with the new ceramic and a "new" 5R4, all power supply output voltages are fine - and the transformer is running cool to the touch after two hours in standby.

Regards to the List -

Jack, W?YJ ("Friend to all things Hammarlund - Even Transmitters!")  
Evergreen, Colorado USA

ps - I also, on Sunday, replaced a large washer on the ceramic feedthru that I installed a couple of weeks ago for the +HV line to the 6146 plates that just ran through a drilled hole. I replaced the large washer with a small split-ring lock washer to hopefully further distance the +HV from ground to, again hopefully, reduce the chance of any future flash-over.

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Photo of the under-chassis  
feedthru: <http://frobenius.com/HX-500b.jpg>  
Perhaps, this photo explains why Hammarlund did  
that wire through the chassis thing - it is a  
very tight fit under the chassis - the adjacent  
socket is for one of the 6146 tubes...

From jharper at secureoutcomes.net Thu Oct 10 12:28:06 2013  
From: jharper at secureoutcomes.net (Jack Harper)  
Date: Thu, 10 Oct 2013 10:28:06 -0600  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
Message-ID: <mailman.223.1381603325.17076.boatanchors@theporch.com>

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Photo of the under-chassis

feedthru: <http://frobenius.com/HX-500b.jpg>

Perhaps, this photo explains why Hammarlund did that wire through the chassis thing - it is a very tight fit under the chassis right up against a shield, wiring harness, etc - the adjacent tube socket in the photo is for one of the 6146 tubes...

From WA5CAB at cs.com Sat Oct 12 17:26:35 2013

From: WA5CAB at cs.com (WA5CAB at cs.com)

Date: Sat, 12 Oct 2013 17:26:35 -0400 (EDT)

Subject: [BoatAnchors] sheet metal screws

Message-ID: <f5532.373a6267.3f8b188b@cs.com>

I'm not sure how blunt the point is (they list sharp pointed ones separately) but McMaster has slotted hex washer head sizes from #6 to 3/8" in various lengths. Quantities of 100 or less per size. However, shortest #6 is 3/8" except in 18-8 Stainless.

In a message dated 10/12/2013 13:52:54 PM Central Daylight Time, gumbear at pacbell.net writes:

> So much stuff put together with these screws, so hard to find in 100  
> piece  
> quantities: You can get what you want on Amazon and eBay if you buy  
> 10,000,  
> 25,000, etc.  
>  
> #6 x 1/4" Type B (blunt point) hex washer head zinc plated sheet metal  
> screw  
>  
> #6 x 5/8" ....  
>  
> #6 x 1" ....  
>  
> Where can one purchase these in small quantities?  
>  
> Arden Allen

> KB6NAX  
>

Robert & Susan Downs - Houston  
wa5cab dot com (Web Store)  
MVPA 9480

From nu4g.radio at gmail.com Sat Oct 12 18:13:33 2013  
From: nu4g.radio at gmail.com (Tom Norris)  
Date: Sat, 12 Oct 2013 17:13:33 -0500  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
Message-ID: <6ACD8528-8311-43A2-B66A-DFE9B3DEC12F@gmail.com>

Arden --

These may be purchased in smaller quantities from mcmaster.com  
I get all my hardware from McMaster Carr. They have stuff that  
most stores around here haven't sold in years if they ever sold them  
in the first place. Sane pricing on both product and shipping -- no  
"handling" unless you order something overnight or something large  
enough to be shipped on a pallet. And they have pretty much every  
type of screw made, every head, every thread pitch, machine, self-drilling  
self tapping, odd spline heads like 5 spline torx security, I had to order  
some of those for my car recently -- and the tool to get the old ones  
out. They're picky about sending out paper catalogs these days --  
I've been trying for ten years with no success, guess cuz I'm just  
a one-horse operation rather than someone who regularly spends  
thousands per month.

They also sell sheet metal for (mostly) sane prices that beat every  
local place in my area. They sell metal films and shim stock of assorted  
sizes? hmmm metal film plus polystyrene or polyethelene or even  
teflon if you're rich and you can go into the homebrew capacitor biz!

73

Tom NU4G

On 5 Oct 2013, at 3:32 PM, Arden Allen <gumbear at pacbell.net> wrote:

> So much stuff put together with these screws, so hard to find in 100 piece  
> quantities: You can get what you want on Amazon and eBay if you buy 10,000,

> 25,000, etc.  
>  
> #6 x 1/4" Type B (blunt point) hex washer head zinc plated sheet metal screw  
>  
> #6 x 5/8" ....  
>  
> #6 x 1" ....  
>  
> Where can one purchase these in small quantities?  
>  
> Arden Allen  
> KB6NAX  
>  
> The average dog is a nicer person than  
> the average person. -Andy Rooney  
>  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From gumbear at pacbell.net Sat Oct 12 18:47:10 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Sat, 12 Oct 2013 15:47:10 -0700  
Subject: [BoatAnchors] sheet metal screws  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<5259A6B4.3010003@mindspring.com>  
Message-ID: <002101cec79d\$0242acc0\$4301a8c0@KB6NAX>

Garey, I'm sure you are aware that the great majority of electronic equipment that is assembled with sheet metal screws uses **Type B** screws, the type with the blunt nose, not the pointed nose screws which are available everywhere in small quantities. Electronics requires blunt nose screws for two good reasons: Sharp point screws easily pierce insulation, and sharp point screws are an injury hazard to assemblers who install and wire up parts in electronic assemblies enclosed in metal chassis work.

Grainger was no help, I had already lookd there before posting. MSC wasn't either. Nope on McMaster Carr. Mouser is a joke when it comes to sheet metal screws, they list only two sizes of #6 hex washer head screws, both Type A sharp point. Allied is an abortion in the making when searching for anything.

If I wanted THOUSANDS of type B screws eBay, Amazon, and a myriad of suppliers has Type B available - let me repeat - TYPE B - screws for sale.



I'm hoping there is an undiscovered cottage industry supplier somewhere who appreciates TYPE B screws

Arden Allen  
KB6NAX

Adopt a shelter dog,  
save an innocent life,  
and make a friend forever =:-)

From kd5byb at kd5byb.net Sat Oct 12 18:55:52 2013  
From: kd5byb at kd5byb.net (Ben Hall)  
Date: Sat, 12 Oct 2013 17:55:52 -0500  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <6ACD8528-8311-43A2-B66A-DFE9B3DEC12F@gmail.com>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<6ACD8528-8311-43A2-B66A-DFE9B3DEC12F@gmail.com>  
Message-ID: <5259D378.1060503@kd5byb.net>

McMaster-Carr is where I get just about all of my hardware from. As Tom noted, they have just about everything.

I find the prices to be very competitive with local stores \*and\* I don't have to spend the time and gas trying Lowe's after Home Depot strikes out (or vice-versa).

They ship from Atlanta, so I get things next day for a ground shipping cost. :)

thanks much and 73,  
ben, kd5byb

From 4cx250b at miamioh.edu Sat Oct 12 19:10:25 2013  
From: 4cx250b at miamioh.edu (MU 4CX250B)  
Date: Sat, 12 Oct 2013 17:10:25 -0600  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <5259D378.1060503@kd5byb.net>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<6ACD8528-8311-43A2-B66A-DFE9B3DEC12F@gmail.com>  
<5259D378.1060503@kd5byb.net>  
Message-ID: <2784415837796514993@unknownmsgid>

Try BoltDepot.com. Great prices, great quality. I use pan head Phillips stainless steel hardware for all my homebrew projects, and I wouldn't go anyplace else.

Sent from my iPhone

> On Oct 12, 2013, at 4:56 PM, Ben Hall <kd5byb at kd5byb.net> wrote:  
>  
> McMaster-Carr is where I get just about all of my hardware from. As Tom noted,  
they have just about everything.  
>  
> I find the prices to be very competitive with local stores \*and\* I don't have to  
spend the time and gas trying Lowe's after Home Depot strikes out (or vice-versa).  
>  
> They ship from Atlanta, so I get things next day for a ground shipping cost. :)  
>  
> thanks much and 73,  
> ben, kd5byb  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From wb0eq at yahoo.com Sat Oct 12 19:50:58 2013  
From: wb0eq at yahoo.com (John Sehring)  
Date: Sat, 12 Oct 2013 16:50:58 -0700 (PDT)  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
Message-ID: <1381621858.58538.YahooMailNeo@web161002.mail.bf1.yahoo.com>

I'd like to see a freq. vs. time plot of the VFO as well. ?Actually the freq. of  
the xmtr output would tell the story.

From cold start & after warm up conditions.

Tnx

?

--John Sehring ?VE6EQR-WB0EQ??nr Calgary, Alberta, Canada

From k0dan at comcast.net Sat Oct 12 20:18:55 2013  
From: k0dan at comcast.net (K0DAN)  
Date: Sat, 12 Oct 2013 19:18:55 -0500  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
Message-ID: <259289E5C0A847B5BAD6B94EB8CCCC8A@K0DANHamshack>

If you have a decent-sized ACE Hardware in your area, they usually have good  
collections of hardware in their bins, sold piecemeal and also in boxes of  
100.

GL es 73

Dan  
K0DAN

-----Original Message-----

From: Arden Allen  
Sent: October 05, 2013 15:32  
To: Old Tube Radios (new)  
Subject: [BoatAnchors] sheet metal screws

So much stuff put together with these screws, so hard to find in 100 piece quantities: You can get what you want on Amazon and eBay if you buy 10,000, 25,000, etc.

#6 x 1/4" Type B (blunt point) hex washer head zinc plated sheet metal screw

#6 x 5/8" ....

#6 x 1" ....

Where can one purchase these in small quantities?

Arden Allen  
KB6NAX

The average dog is a nicer person than  
the average person. -Andy Rooney

-----  
BoatAnchors mailing list  
BoatAnchors at theporch.com  
<https://minime.theporch.com/mailman/listinfo/boatanchors>

From nu4g.radio at gmail.com Sat Oct 12 22:39:03 2013  
From: nu4g.radio at gmail.com (Tom Norris)  
Date: Sat, 12 Oct 2013 21:39:03 -0500  
Subject: [BoatAnchors] sheet metal screws BINGO!  
In-Reply-To: <003401cec79e\$05f007e0\$4301a8c0@KB6NAX>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<6ACD8528-8311-43A2-B66A-DFE9B3DEC12F@gmail.com>  
<003401cec79e\$05f007e0\$4301a8c0@KB6NAX>  
Message-ID: <35EB6CEB-30F2-40A5-AB27-B5DFD0A8FE6A@gmail.com>

BINGO!!!

In the search box I typed "type b screw" and clicked on the closest match, "type b thread-forming screw" and out it spat/shat the url below --

<http://www.mcmaster.com/#type-b-thread-forming-screws/=owtfcq>

Several standard imperial and metric sizes, 25 pc/box \$10, so they are a bit expensive compared to normal hardware, but they have them. Available in Torx, slotted, Phillips pan-head, Phillips flat-head, hex and combo hex/slotted. Mechanical drawings available on all of them by simply clicking on the part number.

73

Good Night, and Good Luck

Tom

On 12 Oct 2013, at 5:49 PM, Arden Allen <gumbear at pacbell.net> wrote:

> Hi Tom,  
>  
> I already tried M-C on their wsbsite. If you know they carry TYPE B screws  
> send me a link. Thanks.  
>  
> Arden

From donreaves at gmail.com Sat Oct 12 23:06:58 2013  
From: donreaves at gmail.com (Don Reaves)  
Date: Sat, 12 Oct 2013 22:06:58 -0500  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <259289E5C0A847B5BAD6B94EB8CCCC8A@K0DANHamshack>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<259289E5C0A847B5BAD6B94EB8CCCC8A@K0DANHamshack>  
Message-ID: <CAEj02LbQjj066ggFy046++xFfpan4AqCs7LMRN\_N7me0gda47A@mail.gmail.com>

Arden

try part number 93880A144 from mcmaster.com  
Thread-Forming Screw for Sheet Metal & Iron, Type B, Hex Washer Head  
Slotted, 6-20 Thread, 1/4" Length  
100 for \$6.83

On Sat, Oct 12, 2013 at 7:18 PM, K0DAN <k0dan at comcast.net> wrote:

> If you have a decent-sized ACE Hardware in your area, they usually have  
> good collections of hardware in their bins, sold piecemeal and also in  
> boxes of 100.  
>  
> GL es 73  
>  
> Dan  
> K0DAN  
>  
> -----Original Message----- From: Arden Allen  
> Sent: October 05, 2013 15:32  
> To: Old Tube Radios (new)  
> Subject: [BoatAnchors] sheet metal screws  
>  
>  
> So much stuff put together with these screws, so hard to find in 100 piece  
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> 10,000,  
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>  
> #6 x 1/4" Type B (blunt point) hex washer head zinc plated sheet metal  
> screw  
>  
> #6 x 5/8" ....  
>  
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> The average dog is a nicer person than  
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>  
> -----\*\*-----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> [https://minime.theporch.com/\\*\\*mailman/listinfo/boatanchors](https://minime.theporch.com/**mailman/listinfo/boatanchors)<<https://minime.theporch.com/mailman/listinfo/boatanchors>>  
> -----\*\*-----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> [https://minime.theporch.com/\\*\\*mailman/listinfo/boatanchors](https://minime.theporch.com/**mailman/listinfo/boatanchors)<<https://minime.theporch.com/mailman/listinfo/boatanchors>>

>

--

Don Reaves W5OR WD2XSH/15  
8101 Barrett Rd. Roland AR 72135  
Fiber: 501.420.3661  
Copper: 501.868.1287  
Radio: 501.952.8573  
All lines monitored 24x7, courtesy the NSA

From w3nu at roadrunner.com Sat Oct 12 23:50:22 2013  
From: w3nu at roadrunner.com (Charles Ring)  
Date: Sat, 12 Oct 2013 23:50:22 -0400  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
Message-ID: <525A187E.5050809@roadrunner.com>

What to do when the hole that the sheet metal screw goes into is  
stripped and the screw won't hold tight? Has that ever been solved?

73 de W3NU

On 10/5/2013 1632, Arden Allen wrote:

> So much stuff put together with these screws, so hard to find in 100 piece  
> quantities: You can get what you want on Amazon and eBay if you buy 10,000,  
> 25,000, etc.  
>  
> #6 x 1/4" Type B (blunt point) hex washer head zinc plated sheet metal screw  
>  
> #6 x 5/8" ....  
>  
> #6 x 1" ....  
>  
> Where can one purchase these in small quantities?  
>  
> Arden Allen  
> KB6NAX  
>

★★

From gumbear at pacbell.net Sun Oct 13 04:11:15 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Sun, 13 Oct 2013 01:11:15 -0700  
Subject: [BoatAnchors] sheet metal screws  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<525A187E.5050809@roadrunner.com>  
Message-ID: <004401cec7eb\$cd7f3130\$4301a8c0@KB6NAX>

> What to do when the hole that the sheet metal screw goes into is stripped and the screw won't hold tight? Has that ever been solved?

Install a one size larger screw. A #8 in place of a #6, for example.

Arden Allen  
KB6NAX

From gumbear at pacbell.net Sun Oct 13 04:08:19 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Sun, 13 Oct 2013 01:08:19 -0700  
Subject: [BoatAnchors] sheet metal screws BINGO!  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<6ACD8528-8311-43A2-B66A-DFE9B3DEC12F@gmail.com>  
<003401cec79e\$05f007e0\$4301a8c0@KB6NAX>  
<35EB6CEB-30F2-40A5-AB27-B5DFD0A8FE6A@gmail.com>  
Message-ID: <004301cec7eb\$cce7fa40\$4301a8c0@KB6NAX>

> BINGO!!!

> In the search box I typed "type b screw" and clicked on the closest match, "type b thread-forming screw" and out it spat/shat the url below --

<http://www.mcmaster.com/#type-b-thread-forming-screws/=owtfcq>

Fine business, Tom! You stumbled over the right nomenclature to get that page. I worked over the Mc-C site twice trying to find Type B screws. They were the first ones I went to. I've bought lots of odds-n-ends from them and have always been pleased with their service. Their web based ordering system is flawed and cross correlation between products with similar nomenclatures is absent to a great degree. Their system needs a major overhauling, IMO. But web ordering is always a catch-as-catch-can proposition wherever you go. Some better and lots of bad ones.

The title of the page section is, "Thread-Forming Screws for Sheet Metal and Iron." But if you use those same words in the search box you get the page

up one echelon. Stupid search engine! The word "thread forming" implies machine threads, not sheet metal higher pitch threads. So called thread forming screws (not to be confuse with thread CUTTING screws) are machine screws where the threads at the tip taper down and form a triangular "trilobal" pattern for engaging a pre-drilled hole in any thickness of appropriate maleability metal and forming machine threads in it. Sheet metal screws cannot go very deep into thick metals unless its very soft, like wood. It's a mixed bag when it comes to hardware application and I've seen all kinds of applications, some violating the manufacturer's application rules making for unreliable assemblies. The guys who write catalogs often have little familiarity with the products they're writing about, just too darn much stuff to know. And the web master is living in never-never land...

Mc-C's following description:

"These Type B thread-forming screws form widely spaced threads in sheet metal and soft metal such as cast iron. They have a blunt tip with an incomplete thread near the end for easy entry. Screws noted have an undercut head to allow more threading. ....Hex washer head screws have a wide, one-piece head that reduces the possibility of crushing thin material. Length is measured from under the washer."

You have to take that with a bit of salt.

Here's a more direct link: <http://www.mcmaster.com/#93880a144/=owxjnk>

Arden Allen  
KB6NAX

From hurstjsj at gmail.com Sat Oct 12 19:16:26 2013  
From: hurstjsj at gmail.com (John Hurst)  
Date: Sat, 12 Oct 2013 16:16:26 -0700  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <002101cec79d\$0242acc0\$4301a8c0@KB6NAX>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<5259A6B4.3010003@mindspring.com> <002101cec79d\$0242acc0\$4301a8c0@KB6NAX>  
Message-ID: <020301cec7a1\$13ecef40\$3bc6cdc0\$@com>

McMaster has type B SS screws here:  
<http://www.mcmaster.com/#sheet-metal-screws/=owqymj>

IMO McMaster Carr is one of the best run companies in the world. At my former employer here in S Cal we could order things by 9AM and have them by



noon the same day with no special charges.

Years ago their big yellow catalogs used to go on eBay for \$90 to \$100. I think the Russians were buying them. Fortunately I have a friend who buys a lot from them and so I can get his old catalogs.

-----Original Message-----

From: BoatAnchors [mailto:boatanchors-bounces at theporch.com] On Behalf Of Arden Allen

Sent: Saturday, October 12, 2013 3:47 PM

To: Old Tube Radios (new); k4oah at mindspring.com

Subject: Re: [BoatAnchors] sheet metal screws

Garey, I'm sure you are aware that the great majority of electronic equipment that is assembled with sheet metal screws uses **Type B** screws, the type with the blunt nose, not the pointed nose screws which are available everywhere in small quantities. Electronics requires blunt nose screws for two good reasons: Sharp point screws easily pierce insulation, and sharp point screws are an injury hazard to assemblers who install and wire up parts in electronic assemblies enclosed in metal chassis work.

Grainger was no help, I had already lookd there before posting. MSC wasn't either. Nope on McMaster Carr. Mouser is a joke when it comes to sheet metal screws, they list only two sizes of #6 hex washer head screws, both Type A sharp point. Allied is an abortion in the making when searching for anything.

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I'm hoping there is an undiscovered cottage industry supplier somewhere who appreciates TYPE B screws

Arden Allen  
KB6NAX

Adopt a shelter dog,  
save an innocent life,  
and make a friend forever =:-)

-----  
BoatAnchors mailing list  
BoatAnchors at theporch.com  
<https://minime.theporch.com/mailman/listinfo/boatanchors>

From k4oah at mindspring.com Sat Oct 12 15:52:38 2013  
From: k4oah at mindspring.com (Garey Barrell)

Date: Sat, 12 Oct 2013 15:52:38 -0400  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
Message-ID: <5259A886.2050709@mindspring.com>

Try Mouser or Allied

<http://tinyurl.com/lc273ya>

73, Garey - K40AH  
Glen Allen, VA

Drake 2-B, 2-C/2-NT, 4-A, 4-B, C-Line  
and TR-4/C Service Supplement CDs  
<[www.k4oah.com](http://www.k4oah.com)>

Arden Allen wrote:

> So much stuff put together with these screws, so hard to find in 100 piece  
> quantities: You can get what you want on Amazon and eBay if you buy 10,000,  
> 25,000, etc.

>

> #6 x 1/4" Type B (blunt point) hex washer head zinc plated sheet metal screw

>

> #6 x 5/8" ....

>

> #6 x 1" ....

>

> Where can one purchase these in small quantities?

>

> Arden Allen

> KB6NAX

>

> The average dog is a nicer person than

> the average person. -Andy Rooney

>

> -----

> BoatAnchors mailing list

> BoatAnchors at [theporch.com](http://theporch.com)

> <https://minime.theporch.com/mailman/listinfo/boatanchors>

>

From k4oah at mindspring.com Sat Oct 12 16:04:36 2013  
From: k4oah at mindspring.com (Garey Barrell)  
Date: Sat, 12 Oct 2013 16:04:36 -0400  
Subject: [BoatAnchors] sheet metal screws

In-Reply-To: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
Message-ID: <5259AB54.6040007@mindspring.com>

Arden -

Another good choice.... 1/4" might be pushing it, but 3/8" and up.

<http://tinyurl.com/k6mzhmf>

Good company, easy to deal with.

73, Garey - K40AH  
Glen Allen, VA

Drake 2-B, 2-C/2-NT, 4-A, 4-B, C-Line  
and TR-4/C Service Supplement CDs  
<[www.k4oah.com](http://www.k4oah.com)>

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> #6 x 1/4" Type B (blunt point) hex washer head zinc plated sheet metal screw

>

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>

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>

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>

> Arden Allen

> KB6NAX

>

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> the average person. -Andy Rooney

>

>

> -----  
> BoatAnchors mailing list

> BoatAnchors at theporch.com

> <https://minime.theporch.com/mailman/listinfo/boatanchors>

>

From mike at oldaudio.net Sun Oct 13 09:47:16 2013  
From: mike at oldaudio.net (Mike Durff)

Date: Sun, 13 Oct 2013 06:47:16 -0700 (PDT)  
Subject: [BoatAnchors] rack panels, anyone?  
Message-ID: <1381672036.37406.YahooMailNeo@web5703.biz.mail.ne1.yahoo.com>

Hello all:

I just discovered that my local machine shop has an excess of steel rack panels... 8" H. They can powder coat in black wrinkle also, but I would have to meet their minimum as far as the number of units.

I hate to see these go to waste... apparently they were making them for a local mil-contractor and these were over-runs. If there is any interest here, I can buy them and have them powder coated.?

Don't know the exact cost, as that would depend on demand... "cheaper by the dozen"... you know. I'll have to get the specs & price after I determine the total qty.

If any of you have an interest, ping me off-list ,?mike at oldaudio.net.

TNX , MD

BTW, these are steel, not aluminum, so you could hang some really heavy iron off of them. Have you seen the price of a Bud panel lately?

From kd5byb at kd5byb.net Sun Oct 13 10:03:01 2013  
From: kd5byb at kd5byb.net (Ben Hall)  
Date: Sun, 13 Oct 2013 09:03:01 -0500  
Subject: [BoatAnchors] McMaster-Carr Boatanchor Supplies  
In-Reply-To: <6ACD8528-8311-43A2-B66A-DFE9B3DEC12F@gmail.com>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<6ACD8528-8311-43A2-B66A-DFE9B3DEC12F@gmail.com>  
Message-ID: <525AA815.9010306@kd5byb.net>

Morning all,

All the McMaster discussion reminded me that I've bought a \*lot\* of stuff from them that I've used working on BA's. Figured I'd share some...

--> They carry "rubber bumpers" which look very much like (and work just like) the rubber feet used in our beloved hollow-state equipment:

<<http://www.mcmaster.com/#standard-rubber-bumpers/=ox26u6>>

I have bought and used at least three different types. They work great.

The sole issue I have with them is that when stored, they "sweat" an oily substance which I wash off with soap and water before I install them.

Once installed, I don't get the sweating. It may be an air-circulation thing.

--> They carry Starrett M1 lubricating spray. What makes this stuff nice is that it sprays on and leaves a thin, almost wax like but not sticky coating that prevents rust. How long it lasts I don't know, have

only been using it for the last 8 years or so with no rust.

<<http://www.mcmaster.com/#starrett-m1-lubricants/=ox29d5>>

--> They also carry various electrical contact cleaners and freeze sprays.

One trick with McMaster is to check the MSDS to see \*what\* the product actually is. Their stock number 8381T11 "spray contact cleaner" is DeOxit G5 spray.

<<http://www.mcmaster.com/#electrical-component-degreasers/=ox2ar9>>

--> They also sell lacquer sticks very, very inexpensively. Yes, you've got to buy a pack of 6 of a color...which is a lifetime supply more or less.

<<http://www.mcmaster.com/#lacquer-sticks/=ox2bkkn>>

--> Some other things I've bought from them:

- felt washers to go under tuning knobs to replace worn-out originals
- step-insulating washers
- electrical "squeeze to insert" cord feed-thrus
- ceramic, plastic, and metal stand-offs
- acorn nuts
- drive-screws that hold on name tags
- slotted hardware with unusual head configurations
- dynamotor bearing grease
- instrument oil
- oddball epoxies

I can go on...but y'all get the point.

thanks much and 73,  
ben, kd5byb

From jharper at secureoutcomes.net Sun Oct 13 12:51:52 2013

From: jharper at secureoutcomes.net (Jack Harper)

Date: Sun, 13 Oct 2013 10:51:52 -0600

Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...

Message-ID: <mailman.374.1381682847.17076.boatanchors@theporch.com>

Greetings to the List -

I managed to get a couple hours work in on the Hammarlund HX-500 Transmitter yesterday (Saturday) and corrected one problem -

Someone replaced a 1M-ohm resistor with a 470K

and also a 470K with two paralleled 470Ks (ugly - for, of course, 235K - both 1/2-watt for the specified 1/2-watt) in the VOX circuit. No idea why they did that - it is not in any of the published Hammarlund service bulletins that I have seen. I checked my separate "parts unit" HX-500 to see what that had - thinking perhaps an error on the schematic - but that has the correct specified components (1M and 470K). So, I changed those to what they should be and the measured voltages got better in the VOX area.

However, my primary headache at the moment is the two-stage audio amplifier - MIC-INPUT to the modulator & friends...

The circuit seems straightforward - a 12AX7 two-stage amp.

However, the published Hammarlund voltage specs - which I have learned to NOT trust at all - claims +93VDC on one of the 12AX7 plates and +155VDC on the other - which does not make sense to me (please see the partial schematic at <http://frobenius.com/audio.pdf> ).

I am seeing measured voltages of +175VDC and +177VDC on those two plates - which does make sense to me. I think this is yet another error in the Hammarlund voltages documentation. Does that really make sense?

I checked all of the resistor values in the audio section and they are all good. However, I have NOT yet checked the capacitors for leakage/values...

The circuit appears to be oscillating - see the 'scope photo at <http://frobenius.com/AudioAmpV5Pin-6NoInput.jpg> which is Pin-6 (plate) of the second stage audio amplifier. It is a very large 150VAC (PP) ~4Khz oscillation...

I see a similar oscillation, though with a very ragged waveform, at Pin-1 (plate) of the first stage of the 12AX7 but at only about 20VAC PP.

In addition, I see a similar waveform of only about 1VAC on the microphone input jack itself.

Of course, all of this is with no mic connected.

In a moment of madness this morning before I left for work, I pulled the 12AX7 tube and all the signals flatlined - I was thinking perhaps that a 4KC signal is being injected into the mic input lead, somehow, from somewhere - but, no.

Question: What could cause an audio amp like that to oscillate? Bad cap? Or, are the original Hammarlund specified voltages actually correct and my 2x voltages are pushing the 12AX7 operating point too far?

Thoughts?

Regards to the List,

Jack, W?YJ ("Friend to all things Hammarlund - even, believe it or not, transmitters")  
Evergreen, Colorado USA

From knjhanlon at msn.com Sun Oct 13 12:52:52 2013  
From: knjhanlon at msn.com (JAMES HANLON)  
Date: Sun, 13 Oct 2013 10:52:52 -0600  
Subject: [BoatAnchors] Need DX-100 or VF-1 frequency control shaft  
Message-ID: <BLU173-W333BE280540F00BA93AE52A0190@phx.gbl>

Russ,

Yes, I had some success. Walt, w3fnz, is/was parting out a DX-100 on ebay, and he invited customers to contact him for any parts that he did not have listed. I did so, and he did have the shaft I need, so we struck a deal. I'm currently waiting for it in the mail.

As to the problem in the rig, when I got the VFO out on its own and powered it from a bench supply, it worked just fine. I'm waiting to put the rig back together before I take the next step, but I strongly suspect the 12BY7 crystal oscillator/buffer tube. I was looking at the VFO signal on the 12BY7 grid with my scope, and it would pop in and out, either full on or full off. It would also consistently pop in at the transient when I turned off the main power switch. I

suspect I have an intermittent short from grid to cathode in that stage. I've tested the 12BY7 on my Hickock and found no shorts, but the behavior is still highly suspicious. If it's not the tube is may be something in the wiring or an associated component.

Thanks for your concern. I will get the old guy back on the air!

73,

Jim, W8KGI

From gumbear at pacbell.net Sun Oct 13 15:22:31 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Sun, 13 Oct 2013 12:22:31 -0700  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
References: <mailman.374.1381682847.17076.boatanchors@theporch.com>  
Message-ID: <001901cec84a\$abb4a1c0\$4301a8c0@KB6NAX>

> .....Question: What could cause an audio amp like  
that to oscillate? Bad cap? Or, are the  
original Hammarlund specified voltages actually  
correct and my 2x voltages are pushing the 12AX7 operating point too far?  
.....

Could be something as simple but dumbfounding as a high resistance ground. C44 is an RF shunt to ground so the input grid is not suspect. C46 is a B+ bypass of questionable value, it may be of too high an impedance to prevent oscillation. Try increasing its size by shunting with an electrolytic of 2 uF or so. R37 appears to be supplying a control voltage to the grid of V5B, probably part of the vox function. Is C48 OK? Check that the +300V line is filtered properly by paralleling it with an electrolytic. If one of those doesn't stop the oscillation then it is being injected from somewhere else. Just my impressions.

Arden Allen  
KB6NAX

The average dog is a nicer person than  
the average person. -Andy Rooney

From jharper at secureoutcomes.net Mon Oct 14 09:53:10 2013  
From: jharper at secureoutcomes.net (Jack Harper)  
Date: Mon, 14 Oct 2013 07:53:10 -0600  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
In-Reply-To: <001901cec84a\$abb4a1c0\$4301a8c0@KB6NAX>



References: <mailman.374.1381682847.17076.boatanchors@theporch.com>  
<001901cec84a\$abb4a1c0\$4301a8c0@KB6NAX>  
Message-ID: <mailman.21.1381758492.91072.boatanchors@theporch.com>

Arden and Roy pointed out that the spurious oscillation that I am seeing in the Hammarlund HX-500 audio amplifier...

>Could be something as simple but dumbfounding as a high resistance ground.

I powered the transmitter up last night after work (Sunday) and the oscillation was still there...

I tapped the area of the chassis with the plastic end of a screwdriver - and, lo and behold, the oscillation suddenly flat-lined :)

I tapped the chassis again and it reappeared. I then sprayed it with cold gas, which did not make it disappear but, rather, made the signal more solid (It has a bit of jitter).

So, it appears to be a bad ground - or, perhaps, an intermittent capacitor. Do disc capacitors do that - become intermittent and sensitive to a tap???

Considering that the oscillation appears in the first stage output as a 20-volt signal (see <http://frobenius.com/AudioAmpFirstStageOscillation.jpg>) and in the second output as a 150-volt signal (see <http://frobenius.com/AudioAmpSecondStageOscillation.jpg>), perhaps it makes sense that the oscillation originates in the first stage - or not(?).

I checked all of the grounds with a DVM and see nothing other than 0.2-ohms. But, perhaps this sort of corrosion on terminal strip bases soldered to a steel chassis 53-years ago might not show on a simple ohmic check???

I think that corrosion etc acts perhaps like a battery - or it is (also) as a capacitor in parallel with the resistance???

I tried to resolder one terminal strip base to the chassis, but my little 60-watt iron is just

not up to that job - the heavy (~85lb) HX-500 chassis steel is something like 3/32 thick. I think that I have an big 'ol ancient iron hidden away somewhere, though components are densely packed there.

Something I am curious about - the oscillation waveform in the first stage - it is stable but a mess with all sorts of frequency components - certainly not a simple sine. I wonder why that is. In addition, the amplified waveform in the second stage output does not look anything like the signal coming out of the first stage - other than that the frequency is the same. Is that because the oscillation is grossly overdriving the stages?? After all, a microphone puts out, what, a few millivolts whilst the oscillation signal in the first stage is about 20-volts.

Anyway - Thank You to the List for setting me on the Right Track on this weird oscillation.

Regards to the List,

Jack, W?YJ ("Friend to all things Hammarlund - even, believe it or not, transmitters")  
Evergreen, Colorado

From w3nu at roadrunner.com Mon Oct 14 15:21:23 2013  
From: w3nu at roadrunner.com (Charles Ring)  
Date: Mon, 14 Oct 2013 15:21:23 -0400  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <004401cec7eb\$cd7f3130\$4301a8c0@KB6NAX>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<525A187E.5050809@roadrunner.com> <004401cec7eb\$cd7f3130\$4301a8c0@KB6NAX>  
Message-ID: <525C4433.9040403@roadrunner.com>

On 10/13/2013 0411, Arden Allen wrote:

>> What to do when the hole that the sheet metal screw goes into is  
> stripped and the screw won't hold tight? Has that ever been solved?  
>  
> Install a one size larger screw. A #8 in place of a #6, for example.

>  
> Arden Allen  
> KB6NAX  
>

The problems with that include the fact that not all the screws will be stripped. I was hoping that over the decades, someone had come up with a better solution. My Johnson Adventurer and Navigator need cosmetic help including this.

--  
\*Charles Ring W3NU\*

From gumbear at pacbell.net Mon Oct 14 15:46:19 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Mon, 14 Oct 2013 12:46:19 -0700  
Subject: [BoatAnchors] sheet metal screws  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<525A187E.5050809@roadrunner.com> <004401cec7eb\$cd7f3130\$4301a8c0@KB6NAX>  
<525C4433.9040403@roadrunner.com>  
Message-ID: <003801cec916\$1d2858d0\$4301a8c0@KB6NAX>

> ...Install a one size larger screw. A #8 in place of a #6, for example.  
.....

> The problems with that include the fact that not all the screws will be stripped. I was hoping that over the decades, someone had come up with a better solution. My Johnson Adventurer and Navigator need cosmetic help including this.

Charles Ring W3NU

Here's a more elegant solution: ePuddle item #370263344749. Haven't tried it myself:

Arden Allen  
KB6NAX

Adopt a shelter dog,  
save an innocent life,  
and make a friend forever =:-)

From mike\_25-z at aafradio.org Mon Oct 14 16:33:52 2013  
From: mike\_25-z at aafradio.org (aafradio)  
Date: Mon, 14 Oct 2013 16:33:52 -0400

Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <003801cec916\$1d2858d0\$4301a8c0@KB6NAX>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<525A187E.5050809@roadrunner.com> <004401cec7eb\$cd7f3130\$4301a8c0@KB6NAX>  
<525C4433.9040403@roadrunner.com> <003801cec916\$1d2858d0\$4301a8c0@KB6NAX>  
Message-ID: <525C5530.1080505@aafradio.org>

On 10/14/2013 3:46 PM, Arden Allen wrote:

>> ...Install a one size larger screw. A #8 in place of a #6, for example.  
> .....  
> The problems with that include the fact that not all the screws will be  
stripped. I was hoping that over the decades, someone had come up with a better  
solution. My Johnson Adventurer and Navigator need cosmetic help  
> including this.  
>  
> Charles Ring W3NU  
>  
> Here's a more elegant solution: ePuddle item #370263344749. Haven't tried  
> it myself:

Those are okay if you have enough room behind the panel, but the  
aluminum is pretty soft if you intend to remove the panels very often.  
An even more elegant way to do it is with the array of aircraft nut  
plates like the ones at  
<http://www.aircraftspruce.com/catalog/hapages/anchorNas444.php>, or my  
favorite - stainless steel captive nuts such as the ones at  
<http://www.mcmaster.com/#captive-nuts/=oxpvc1>

73,  
- Mike KC4TOS

From wb3fau55 at neo.rr.com Mon Oct 14 15:42:35 2013  
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)  
Date: Mon, 14 Oct 2013 15:42:35 -0400  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <525C4433.9040403@roadrunner.com>  
Message-ID: <20131014194235.EDW30.79690.root@cdptpa-web02-z01>

anybody ever hear of pressed in threaded inserts? then use machine screws as  
replacements...73s Russ.

----- Charles Ring <w3nu at roadrunner.com> wrote:

>  
> On 10/13/2013 0411, Arden Allen wrote:  
> >> What to do when the hole that the sheet metal screw goes into is  
> > stripped and the screw won't hold tight? Has that ever been solved?  
> >

> > Install a one size larger screw. A #8 in place of a #6, for example.  
> >  
> > Arden Allen  
> > KB6NAX  
> >  
>  
> The problems with that include the fact that not all the screws will be  
> stripped. I was hoping that over the decades, someone had come up with a  
> better solution. My Johnson Adventurer and Navigator need cosmetic help  
> including this.  
>  
> --  
> \*Charles Ring W3NU\*  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From 4cx250b at miamioh.edu Mon Oct 14 18:53:34 2013  
From: 4cx250b at miamioh.edu (Jim Garland)  
Date: Mon, 14 Oct 2013 16:53:34 -0600  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <20131014194235.EDW30.79690.root@cdptpa-web02-z01>  
References: <525C4433.9040403@roadrunner.com>  
<20131014194235.EDW30.79690.root@cdptpa-web02-z01>  
Message-ID: <B816F4289B5A4D82B2D76A340A0E7085@Garland>

Yes, that's actually a great solution, which I've done many times. I punch out the stripped hole to the correct diameter for the "Pem-Nut" insert, and end up with a nice threaded hole that's very strong. Some versions of Pem-Nuts are flush with the outside of the aluminum threaded piece, resulting in a threaded hole that is much stronger than the original and looks great. In fact, if one is really compulsive, all the lousy sheet metal screws in a radio can be replaced that way.

73,  
Jim W8ZR

> -----Original Message-----  
> From: BoatAnchors [mailto:boatanchors-bounces at theporch.com] On Behalf Of  
> wb3fau55 at neo.rr.com  
> Sent: Monday, October 14, 2013 1:43 PM  
> To: Arden Allen; boatanchors at theporch.com; Charles Ring  
> Subject: Re: [BoatAnchors] sheet metal screws  
>  
> anybody ever hear of pressed in threaded inserts? then use machine screws  
as

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> replacements...73s Russ.
> ---- Charles Ring <w3nu at roadrunner.com> wrote:
> >
> > On 10/13/2013 0411, Arden Allen wrote:
> > > What to do when the hole that the sheet metal screw goes into is
> > > stripped and the screw won't hold tight? Has that ever been solved?
> > >
> > > Install a one size larger screw. A #8 in place of a #6, for example.
> > >
> > > Arden Allen
> > > KB6NAX
> > >
> >
> > The problems with that include the fact that not all the screws will be
> > stripped. I was hoping that over the decades, someone had come up with a
> > better solution. My Johnson Adventurer and Navigator need cosmetic help
> > including this.
> >
> > --
> > *Charles Ring W3NU*
> >
> > -----
> > BoatAnchors mailing list
> > BoatAnchors at theporch.com
> > https://minime.theporch.com/mailman/listinfo/boatanchors
> >
> > -----
> > BoatAnchors mailing list
> > BoatAnchors at theporch.com
> > https://minime.theporch.com/mailman/listinfo/boatanchors

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From: johnmb at nc.rr.com Sun Oct 13 19:07:18 2013
From: johnmb at nc.rr.com (john)
Date: Sun, 13 Oct 2013 19:07:18 -0400
Subject: [BoatAnchors] sheet metal screws-Solutions
In-Reply-To: <20131014194235.EDW30.79690.root@cdptpa-web02-z01>
References: <525C4433.9040403@roadrunner.com>
<20131014194235.EDW30.79690.root@cdptpa-web02-z01>
Message-ID: <6.2.1.2.2.20131013190151.03f32cf0@pop-server.nc.rr.com>

```

Hi Russ

The trade name for those are Pem Nuts, and they're good for machine screws. For self tapping screws one can purchase the little slip on U-shaped "hole shrinkers" for such applications. I'm pretty sure you can get them at the box stores for some outrageous price just because they're in a plastic bag. Alternately one could score an assortment off ebay...

[http://www.ebay.com/itm/nos-10-steel-sheet-metal-screw-j-nuts-Clips-set-of-20-/310767978974?pt=Vintage\\_Car\\_Truck\\_Parts\\_Accessories&hash=item485b3709de&vxp=mtr](http://www.ebay.com/itm/nos-10-steel-sheet-metal-screw-j-nuts-Clips-set-of-20-/310767978974?pt=Vintage_Car_Truck_Parts_Accessories&hash=item485b3709de&vxp=mtr)

"J" nuts they seem to be called . They're available far cheaper if needed and single plane jobbies are also to be had.

I seem to recall a "hint and kink" that involves making a small horseshoe of magnet wire, and hanging it in a hogged out hole, giving a machine screw one more opportunity to make a purchase in a thin steel chassis by taking up slack in the diameter

John K5MO

At 03:42 PM 10/14/2013, wb3fau55 at neo.rr.com wrote:

>anybody ever hear of pressed in threaded inserts? then use machine screws  
>as replacements...73s Russ.

>----- Charles Ring <w3nu at roadrunner.com> wrote:

> >

> > On 10/13/2013 0411, Arden Allen wrote:

> > > What to do when the hole that the sheet metal screw goes into is  
> > > stripped and the screw won't hold tight? Has that ever been solved?

> > >

> > > Install a one size larger screw. A #8 in place of a #6, for example.

> > >

> > > Arden Allen

> > > KB6NAX

> > >

> >

> > The problems with that include the fact that not all the screws will be  
> > stripped. I was hoping that over the decades, someone had come up with a  
> > better solution. My Johnson Adventurer and Navigator need cosmetic help  
> > including this.

> >

> > --

> > \*Charles Ring W3NU\*

> >

> > -----  
> > BoatAnchors mailing list

> > BoatAnchors at theporch.com

> > <https://minime.theporch.com/mailman/listinfo/boatanchors>

>

> -----  
> BoatAnchors mailing list

> BoatAnchors at theporch.com

> <https://minime.theporch.com/mailman/listinfo/boatanchors>

III

From k4pf at juno.com Mon Oct 14 19:52:53 2013  
From: k4pf at juno.com (k4pf at juno.com)  
Date: Mon, 14 Oct 2013 23:52:53 GMT  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
Message-ID: <20131014.195253.31892.0@webmail14.vgs.unttd.com>

> Jack Harper <jharper at secureoutcomes.net> wrote  
> Arden and Roy pointed out that the spurious  
oscillation that I am seeing in the Hammarlund HX-500 audio amplifier...  
> Could be something as simple but dumbfounding as a high resistance ground. <snip>  
> I tapped the chassis again and it reappeared. I  
then sprayed it with cold gas, which did not make  
it disappear but, rather, made the signal more solid (It has a bit of jitter).  
> So, it appears to be a bad ground - or, perhaps,  
an intermittent capacitor. Do disc capacitors  
do that - become intermittent and sensitive to a tap??? <snip>

Hi, Jack

I had a poor input match to my Hammarlund HXL-1 linear,  
on the 20m band only. That turned out to be an OPEN disc capacitor  
used in the input tuned circuit. I found it using the capacitance  
measuring feature of an Autek RF-1 antenna analyst.

73,  
Ed Knobloch

From bill at iaxs.net Mon Oct 14 22:06:47 2013  
From: bill at iaxs.net (Bill Hawkins)  
Date: Mon, 14 Oct 2013 21:06:47 -0500  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
In-Reply-To: <20131014.195253.31892.0@webmail14.vgs.unttd.com>  
References: <20131014.195253.31892.0@webmail14.vgs.unttd.com>  
Message-ID: <7D637C3573CF448F82D9BB4BDB669531@system072>

Jack,

Never did much with RF, but do understand audio amplifiers.

The waveforms you show look like a blocking oscillator.  
Strong feedback is required, usually from a transformer winding.



Does the HX-500 audio have feedback from a winding on the modulation transformer? Is there any kind of feedback to the first audio tube?

Where can I get a HX-500 schematic?

Bill Hawkins

From k1lky at earthlink.net Mon Oct 14 23:06:40 2013  
From: k1lky at earthlink.net (Roy Morgan)  
Date: Mon, 14 Oct 2013 23:06:40 -0400  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <B816F4289B5A4D82B2D76A340A0E7085@Garland>  
References: <525C4433.9040403@roadrunner.com>  
<20131014194235.EDW30.79690.root@cdptpa-web02-z01>  
<B816F4289B5A4D82B2D76A340A0E7085@Garland>  
Message-ID: <EC45E2AB-C3FD-43C9-83F4-7F50CD0F7C4D@earthlink.net>

On Oct 14, 2013, at 6:53 PM, Jim Garland <4cx250b at miamioh.edu> wrote:

> Yes, that's actually a great solution, which I've done many times. I punch  
> out the stripped hole to the correct diameter for the "Pem-Nut" insert, and  
> end up with a nice threaded hole that's very strong.

It's best if the newly enlarged hole is Exactly the right diameter for the PEM nut.

That way when you squash\* the nut into the sheet metal, all the metal skooshes\* to just the right place and strength.

\*technical terms, sorry to not have approved engineering definitions at hand.

For more info, see:

[http://www.pemnet.com/fastening\\_products/pem-self-clinching-fastener\\_new.html](http://www.pemnet.com/fastening_products/pem-self-clinching-fastener_new.html)  
"Nuts For Sheetmetal"  
then "Standard Profile"

Roy

Roy Morgan  
RoyMorgan at alum.mit.edu  
K1LKY Since 1958 - Keep 'em Glowing!

From gumbear at pacbell.net Mon Oct 14 23:14:26 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Mon, 14 Oct 2013 20:14:26 -0700  
Subject: [BoatAnchors] sheet metal screws  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<525A187E.5050809@roadrunner.com> <004401cec7eb\$cd7f3130\$4301a8c0@KB6NAX>  
<525C4433.9040403@roadrunner.com> <003801cec916\$1d2858d0\$4301a8c0@KB6NAX>  
<525C5530.1080505@aafradio.org>  
Message-ID: <003201cec954\$aa4ecd50\$4301a8c0@KB6NAX>

> An even more elegant way to do it is with the array of aircraft nut  
plates like the ones at  
<http://www.aircraftspruce.com/catalog/hapages/anchorNas444.php>, or my  
favorite - stainless steel captive nuts such as the ones at  
<http://www.mcmaster.com/#captive-nuts/=oxpvc1>

The first one is a Tinnerman nut for aircraft, it can't get lost to foul  
things up (FOD in aviation parlance). A simple way to install them is to  
put them in place with a sheet metal screw (or machine screw if the pitch is  
right) and epoxy the "wings" to the inside of the panel. Electrical  
continuity may be a problem so panel to panel intimacy should be good.

The second one requires a good quality hole and a stable press in method. If  
it goes in crooked epoxy is the salvation.

Arden Allen  
KB6NAX

If you pick up a starving dog and  
make him prosperous, he will not  
bite you. This is the principle  
difference between a dog and  
a man. -Mark Twain

From hankvc at lostwells.net Wed Oct 16 12:57:22 2013  
From: hankvc at lostwells.net (HankVC)  
Date: Wed, 16 Oct 2013 10:57:22 -0600 (MDT)  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <525C4433.9040403@roadrunner.com>  
Message-ID: <201310161657.r9GGvM1A010012@joanne.lostwells.net>

The esteemed Charles Ring has said:

>  
>

> On 10/13/2013 0411, Arden Allen wrote:  
> >> What to do when the hole that the sheet metal screw goes into is  
> > stripped and the screw won't hold tight? Has that ever been solved?  
> >  
> > Install a one size larger screw. A #8 in place of a #6, for example.  
> >  
> > Arden Allen  
> > KB6NAX  
> >  
>  
> The problems with that include the fact that not all the screws will be  
> stripped. I was hoping that over the decades, someone had come up with a  
> better solution. My Johnson Adventurer and Navigator need cosmetic help  
> including this.  
>  
There are several solutions for this problem. The "quick and dirty"  
fix is to peen the stripped-out hole to squeeze the sheet metal. You  
have to get a bucking dolly behind the hole and do some judicious  
tapping with a hammer, and requires some skill to do. Also, it's not  
a long-term fix.

The best long-term fixes I can think of is to bore the holes oversize  
and install nut inserts. PEM fasteners makes several styles of  
clinch inserts that are splined on the outside and self-broaching.  
You can generally stake them with a good squeeze with Channellock  
pliers.

Rivnuts are similar to pop rivets; go in a bored-out hole and use a  
pull-to-upset tool to secure in place. Both types leave you with a  
tapped screw hole ready for something like a #6 or #8 pan head  
stainless steel machine screw. Yes, that brand of rework doesn't  
"restore it like it was originally made," but really looks first-class  
when done.

Hank

From w3nu at roadrunner.com Wed Oct 16 15:38:14 2013  
From: w3nu at roadrunner.com (Charles Ring)  
Date: Wed, 16 Oct 2013 15:38:14 -0400  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <201310161657.r9GGvM1A010012@joanne.lostwells.net>  
References: <201310161657.r9GGvM1A010012@joanne.lostwells.net>  
Message-ID: <525EEB26.5020500@roadrunner.com>

Thank you all for the suggestions; I will pick one and go with it.

--

\*Charles Ring W3NU\*

From WA1KBQ at aol.com Wed Oct 16 21:22:06 2013  
From: WA1KBQ at aol.com (WA1KBQ at aol.com)  
Date: Wed, 16 Oct 2013 21:22:06 -0400 (EDT)  
Subject: [BoatAnchors] sheet metal screws  
Message-ID: <32e16.67c99a65.3f9095be@aol.com>

I'll throw one more possibly interesting tip in the mix;  
fastenersclearinghouse.com. I use them whenever I need exact duplicates of the original  
factory installed hardware where made in China from the local hardware store just won't do. For example: in the thirties and forties National used a lot of slotted pan head #8 x 1/4" type B (thread forming) with a black finish and they are still available. National also used a lot of nickel plated brass hardware which is still available. A lot of Hallicrafters hardware had cadmium plating, also no problem. When you submit the search form it will often return a "not in stock" reply. However, you will usually receive several in-stock offers over the next day or two from other member suppliers across the country with old inventory to sell who also got your message and glad for an opportunity to move some of it. The trick here is don't request 25 or 50. If you really want it and it's something from many years ago and otherwise impossible to find now request 500 or 1000. I have accumulated an assortment of nice old OEM type hardware this way exactly as the original manufacturer used. New hardware is a really a nice way to finish off a good restoration job, especially considering many of the jobs we tackle have missing or substituted hardware by now anyway.

Regards, Greg

In a message dated 10/16/2013 3:47:39 P.M. Eastern Daylight Time,  
w3nu at roadrunner.com writes:

Thank you all for the suggestions; I will pick one and go with it.

--

\*Charles Ring W3NU\*

---

BoatAnchors mailing list  
BoatAnchors at theporch.com  
<https://minime.theporch.com/mailman/listinfo/boatanchors>

From gumbear at pacbell.net Wed Oct 16 21:59:48 2013

From: gumbear at pacbell.net (Arden Allen)  
Date: Wed, 16 Oct 2013 18:59:48 -0700  
Subject: [BoatAnchors] sheet metal screws  
References: <32e16.67c99a65.3f9095be@aol.com>  
Message-ID: <000b01cecad939897b0\$4301a8c0@KB6NAX>

> .....If you really want it and it's something from many years ago and otherwise impossible to find now request 500 or 1000. I have accumulated an assortment of nice old OEM type hardware this way exactly as the original manufacturer used. ...

Well, Greg, with all the extra hardware you have are you planning to open a Boatanchors Hardware chain? Now I know who to go to to get the rare stuff! ;-)

Arden Allen  
KB6NAX

If you get to thinking you're a person of some influence, try ordering somebody else's dog around. -Will Rogers

From w4rl at bellsouth.net Wed Oct 16 22:25:46 2013  
From: w4rl at bellsouth.net (Robert)  
Date: Wed, 16 Oct 2013 21:25:46 -0500  
Subject: [BoatAnchors] sheet metal screws  
In-Reply-To: <000b01cecad939897b0\$4301a8c0@KB6NAX>  
References: <32e16.67c99a65.3f9095be@aol.com>  
<000b01cecad939897b0\$4301a8c0@KB6NAX>  
Message-ID: <525F4AAA.3070003@bellsouth.net>

Semi-somewhat-kinda-sorta-great minds, Greg, are awaiting with baited breaths..... <grin>

I've always said, "If ya can't glue it, screw it...".

Robert W4RL

On 10/16/2013 8:59 PM, Arden Allen wrote:

>> .....If you really want it and it's something from many years ago and  
> otherwise impossible to find now request 500 or 1000. I have accumulated an  
> assortment of nice old OEM type hardware this way exactly as the original  
> manufacturer used. ...

>

> Well, Greg, with all the extra hardware you have are you planning to open a

> Boatanchors Hardware chain? Now I know who to go to to get the rare stuff!  
> ;-)  
>  
> Arden Allen  
> KB6NAX  
>  
> If you get to thinking you're a person of  
> some influence, try ordering somebody  
> else's dog around. -Will Rogers  
>  
>  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>  
>

From nf6x at nf6x.net Fri Oct 18 11:04:03 2013  
From: nf6x at nf6x.net (Mark J. Blair)  
Date: Fri, 18 Oct 2013 08:04:03 -0700  
Subject: [BoatAnchors] McMaster-Carr Boatanchor Supplies  
In-Reply-To: <525AA815.9010306@kd5byb.net>  
References: <000901cec20a\$0a6ab570\$4301a8c0@KB6NAX>  
<6ACD8528-8311-43A2-B66A-DFE9B3DEC12F@gmail.com>  
<525AA815.9010306@kd5byb.net>  
Message-ID: <247F7949-3F7A-4C43-AAC5-7CA514F4D501@nf6x.net>

On Oct 13, 2013, at 07:03 , Ben Hall <kd5byb at kd5byb.net> wrote:  
> All the McMaster discussion reminded me that I've bought a \*lot\* of stuff from  
them that I've used working on BA's. Figured I'd share some...

Nice! I'll share some of the countless items I've ordered from them, too:

- Sealed ball bearing assemblies for T-368 transmitter blower motors
- Tiny steel balls to replace rusted detents in CX-52 cipher machine print wheel
- Coiled spring stock to make replacement springs in all sorts of stuff
- Grade 5 and grade 8 hardware for my military vehicles
- Music wire for making antennas, springs, etc.
- Letter stamps for stamping dataplates
- Gasket punches
- Crimpers for heavy-gauge welding cable lugs
- Heavy gauge welding cable, for vehicle battery cables, dynamotor input, etc.
- Lots of tools
- Captive nuts
- Plastic and metal stock
- Relays, terminal blocks

- Wire... often much cheaper than Digi-Key and the like
- Heat-shrink tubing, lots of specialized varieties
- Self-fusing no-adhesive tape for sealing stuff from the weather
- Locks and simple locksmithing supplies

McMaster-Carr is one of my top go-to suppliers for all of my various hobbies that involve making or repairing physical stuff. They ship quickly, and their web page search engine is one of the best I've used.

--

Mark J. Blair, NF6X <nf6x at nf6x.net>  
<http://www.nf6x.net/>

From wwatson5 at sbcglobal.net Fri Oct 18 22:38:26 2013  
 From: wwatson5 at sbcglobal.net (William Watson)  
 Date: Fri, 18 Oct 2013 19:38:26 -0700 (PDT)  
 Subject: [BoatAnchors] Breting 14  
 Message-ID: <1382150306.55779.YahooMailNeo@web181404.mail.ne1.yahoo.com>

I am wanting to restore a Breting 14.? I have two of them.? However, the only info I have on the radio?is?the Rider material that is on BAMA.?

?

I saw a thread that claims that the Rider schematic is deliberately in error--- done to frustrate would-be competitors for the radio.

?

If anyone has a corrected schematic or any information re the radio that would be helpful for restoration, I would be very glad to receive it.

?

Thanks.

?

Joe Watson  
 W5WBR

From arc5 at ix.netcom.com Sat Oct 19 05:34:46 2013  
 From: arc5 at ix.netcom.com (David Stinson)  
 Date: Sat, 19 Oct 2013 04:34:46 -0500  
 Subject: [BoatAnchors] Breting 14  
 In-Reply-To: <1382150306.55779.YahooMailNeo@web181404.mail.ne1.yahoo.com>  
 References: <1382150306.55779.YahooMailNeo@web181404.mail.ne1.yahoo.com>  
 Message-ID: <6D7FB96AB3AD407EA62B729A980C486F@CompaqSR5710F>

>I am wanting to restore a Breting 14...

I thought Breting made machine guns during WWI?

From WA1KBQ at aol.com Sat Oct 19 21:59:47 2013  
From: WA1KBQ at aol.com (WA1KBQ at aol.com)  
Date: Sat, 19 Oct 2013 21:59:47 -0400 (EDT)  
Subject: [BoatAnchors] Breting 14  
Message-ID: <15e91.339c8a27.3f949313@aol.com>

Joe,

Larry Rosine; W?OG wrote a pretty good Breting 14 article for the AWA Old Timers Bulletin many years ago and mentioned he had observed there were at least 4 slightly different versions of the Breting 14 he knew of which might be responsible for some schematic differences. I can offer you one version published by Breting which may help.

<http://i104.photobucket.com/albums/m191/wa1kbq/Breting%2014/Breting14Schematic-1.jpg>

<http://i104.photobucket.com/albums/m191/wa1kbq/Breting%2014/Breting14Schematic-2.jpg>

Regards,  
Greg; WA1KBQ

In a message dated 10/18/2013 10:50:34 P.M. Eastern Daylight Time, wwatson5 at sbcglobal.net writes:

I am wanting to restore a Breting 14. I have two of them. However, the only info I have on the radio is the Rider material that is on BAMA.

I saw a thread that claims that the Rider schematic is deliberately in error---done to frustrate would-be competitors for the radio.

If anyone has a corrected schematic or any information re the radio that would be helpful for restoration, I would be very glad to receive it.

Thanks.

Joe Watson  
W5WBR

---

BoatAnchors mailing list  
BoatAnchors at theporch.com  
<https://minime.theporch.com/mailman/listinfo/boatanchors>

From rbsingl at ilstu.edu Sat Oct 19 22:10:18 2013



From: rbsingl at ilstu.edu (Singley, Rodger)  
Date: Sun, 20 Oct 2013 02:10:18 +0000  
Subject: [BoatAnchors] Breting 14  
In-Reply-To: <1382150306.55779.YahooMailNeo@web181404.mail.ne1.yahoo.com>  
References: <1382150306.55779.YahooMailNeo@web181404.mail.ne1.yahoo.com>  
Message-ID: <0DEBF1C8D8437248BE53CD4213B89BD322F1402D@ISUEMBX02.ad.ilstu.edu>

Joe,

I have a 14 and a 14AX and the Rider info is all that I had for restoration. I don't recall any major errors in the information.

Rodger WQ9E

Dr. Rodger B. Singley  
Professor of Marketing

> -----Original Message-----  
> From: BoatAnchors [mailto:boatanchors-bounces at theporch.com] On Behalf  
> Of William Watson  
> Sent: Friday, October 18, 2013 9:38 PM  
> To: boatanchors at theporch.com  
> Subject: [BoatAnchors] Breting 14  
>  
> I am wanting to restore a Breting 14.? I have two of them.? However,  
> the only info I have on the radio?is?the Rider material that is on  
> BAMA.  
>  
> I saw a thread that claims that the Rider schematic is deliberately in  
> error---done to frustrate would-be competitors for the radio.  
>  
> If anyone has a corrected schematic or any information re the radio  
> that would be helpful for restoration, I would be very glad to receive  
> it.  
>  
> Thanks.  
>  
> Joe Watson  
> W5WBR  
>  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From wwatson5 at sbcglobal.net Sun Oct 20 00:45:03 2013

From: wwatson5 at sbcglobal.net (William Watson)  
Date: Sat, 19 Oct 2013 21:45:03 -0700 (PDT)  
Subject: [BoatAnchors] Looking for knobs for National RAO  
Message-ID: <1382244303.42480.YahooMailNeo@web181403.mail.ne1.yahoo.com>

I am looking for a set of knobs for the National RAO.? I need 9 of the rectangular pointer knobs and 1 of the big tuning knobs (I have 1).

?

If anyone has any they would part with, let me know your price shipped to 73013.

?

Thanks.

?

Joe Watson

W5WBR

From 1oldlens1 at ix.netcom.com Sat Oct 19 10:53:51 2013  
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)  
Date: Sat, 19 Oct 2013 07:53:51 -0700  
Subject: [BoatAnchors] Breting 14  
References: <1382150306.55779.YahooMailNeo@web181404.mail.ne1.yahoo.com>  
Message-ID: <5EC2D9D48C824DC6ACB2AA7AC5D07476@VALUED20606295>

----- Original Message -----

From: "William Watson" <wwatson5 at sbcglobal.net>  
To: <boatanchors at theporch.com>  
Sent: Friday, October 18, 2013 7:38 PM  
Subject: [BoatAnchors] Breting 14

I am wanting to restore a Breting 14. I have two of them.  
However, the only info I have on the radio is the Rider  
material that is on BAMA.

I saw a thread that claims that the Rider schematic is  
deliberately in error---done to frustrate would-be  
competitors for the radio.

If anyone has a corrected schematic or any information re  
the radio that would be helpful for restoration, I would be  
very glad to receive it.

Thanks.

Joe Watson  
W5WBR

I don't know where else to get service info. I suspect

that if there is an error its due either to production variations or plain carelessness. Breting was a small company and may not have published much service data. There are much larger companies who's service information is not always reliable, Hallicrafters for one. I think you are going to have to explore the sets to find how accurate the information is.

--

Richard Knoppow  
Los Angeles  
WB6KBL  
dickburk at ix.netcom.com

From arc5 at ix.netcom.com Sun Oct 20 09:24:01 2013  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Sun, 20 Oct 2013 08:24:01 -0500  
Subject: [BoatAnchors] Need Loctal Tubes. Trade?  
Message-ID: <D0EF9D9EB2EE4C2C9BA47D6C17D35B53@CompaqSR5710F>

Need the following battery Loctals:

- (2) 1LB4
- (4) 1LN5
- (2) 1LH6
- (2) 1LH5

Good/Used is fine, as long as they work.  
Have traders or ?

73 Dave AB5S

From ae4r at cox.net Sun Oct 20 10:39:25 2013  
From: ae4r at cox.net (Mike Steussy)  
Date: Sun, 20 Oct 2013 10:39:25 -0400  
Subject: [BoatAnchors] HT-9 wanted  
Message-ID: <5263EB1D.8040207@cox.net>

Ahoy! My friend Kurt (licensed amateur not on this list) is sort of looking for a Hallicrafters HT-9 transmitter. He understands plug-in coils for them are "unobtainium" and isn't too concerned about condition of the radio. He lives in Falls Church VA, inside the National Capitol Beltway. If you have or know of an HT-9 within driving range that he

could pick up please advise me directly and I'll relay to Kurt. TNX es  
73, Mike AE4R

From johnmb at nc.rr.com Sat Oct 19 18:51:03 2013  
From: johnmb at nc.rr.com (john)  
Date: Sat, 19 Oct 2013 18:51:03 -0400  
Subject: [BoatAnchors] HT-9 wanted  
In-Reply-To: <5263EB1D.8040207@cox.net>  
References: <5263EB1D.8040207@cox.net>  
Message-ID: <6.2.1.2.2.20131019173832.04307230@pop-server.nc.rr.com>

Kurt, I have one that's probably available.....with tuning units (though I  
can't remember which ones) and all tubes...

John

At 10:39 AM 10/20/2013, Mike Steussy wrote:

>Ahoy! My friend Kurt (licensed amateur not on this list) is sort of  
>looking for a Hallicrafters HT-9 transmitter. He understands plug-in  
>coils for them are "unobtainium" and isn't too concerned about condition  
>of the radio. He lives in Falls Church VA, inside the National Capitol  
>Beltway. If you have or know of an HT-9 within driving range that he  
>could pick up please advise me directly and I'll relay to Kurt. TNX es  
>73, Mike AE4R

>\_\_\_\_\_

>BoatAnchors mailing list

>BoatAnchors at theporch.com

><https://minime.theporch.com/mailman/listinfo/boatanchors>

III

From Paul.Thekan at cpii.com Mon Oct 21 11:39:32 2013  
From: Paul.Thekan at cpii.com (Thekan, Paul)  
Date: Mon, 21 Oct 2013 08:39:32 -0700  
Subject: [BoatAnchors] Westinghouse Navy Meters  
Message-ID: <7EC59351BB5C644E80AB7A434394DFF027EA341FA4@Torreypines.cpii.com>

Greetings to the group

Looking for the following meters to restore a couple of WW2 Navy xmtrs , the TBM  
and RCA TBK. These are the 3" white face Westinghouse meters that were used on  
these xmtrs

Westinghouse: type NX-35

250 madc  
500 madc

Type NA-35

15vac

Type NC-35 F.S. 11.97vac

10db level meter.....used on the 50064 speech amp

Also looking for the meter legends that affix to the meters.....would be a long shot if you had any. Any hardware or parts related to these xmtrs you may still have , please let me know.

Thanks so much!!

73  
Paul /FEG

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This message, including any attachments, may include privileged, confidential and/or inside information. Any distribution or use of this communication by anyone other than the intended recipient(s) is strictly prohibited and may be unlawful. If you are not the intended recipient, please notify the sender by replying to this message and then delete it from your system.

From arc5 at ix.netcom.com Mon Oct 21 20:54:36 2013  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Mon, 21 Oct 2013 19:54:36 -0500  
Subject: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?  
Message-ID: <1DD0BFBC21BE430B99D05C7B8EBB25A0@CompaqSR5710F>

Is there such a thing as a sweep tube that can handle 1000 Volts on the plate? Best if it has 10 to 14 Volt filament, but will work with other voltages.

73 DE Dave AB5S

From arc5 at ix.netcom.com Mon Oct 21 21:09:04 2013  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Mon, 21 Oct 2013 20:09:04 -0500  
Subject: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?  
In-Reply-To: <1DD0BFBC21BE430B99D05C7B8EBB25A0@CompaqSR5710F>  
References: <1DD0BFBC21BE430B99D05C7B8EBB25A0@CompaqSR5710F>  
Message-ID: <EB0AEFF9F4AF42AE92030621BD744F16@CompaqSR5710F>

Sorry- not enough info. I'm not an old TV person, so not familiar with what's what in Sweeps.  
I'm "noodling" a way to get all those dead, tubeless BC-375s "lit-off."  
First, going to try 1625s, but not at full B+.  
Looking for something that won't melt under the dynamotor's 1000 Volts.

From rbsingl at ilstu.edu Mon Oct 21 21:12:21 2013  
From: rbsingl at ilstu.edu (Singley, Rodger)  
Date: Tue, 22 Oct 2013 01:12:21 +0000  
Subject: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?  
In-Reply-To: <1DD0BFBC21BE430B99D05C7B8EBB25A0@CompaqSR5710F>  
References: <1DD0BFBC21BE430B99D05C7B8EBB25A0@CompaqSR5710F>  
Message-ID: <0DEBF1C8D8437248BE53CD4213B89BD322F1574A@ISUEMBX02.ad.ilstu.edu>

Dave,

Kenwood runs about 1400 volts on the 6LQ6 tubes in the TL-911 and Yaesu uses 1250 volts on the 6KD6 tubes in the FL-2500. I have both amps and the tubes live a long life when properly tuned.

Rodger WQ9E

Dr. Rodger B. Singley  
Professor of Marketing

> -----Original Message-----  
> From: BoatAnchors [mailto:boatanchors-bounces at theporch.com] On Behalf  
> Of David Stinson  
> Sent: Monday, October 21, 2013 7:55 PM  
> To: boatanchors at mailman.qth.net  
> Cc: boatanchors at theporch.com  
> Subject: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?  
>  
> Is there such a thing as a sweep tube that can handle 1000 Volts  
> on the plate? Best if it has 10 to 14 Volt filament, but will work

> with other voltages.  
>  
> 73 DE Dave AB5S  
>  
>  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From rbsingl at ilstu.edu Mon Oct 21 21:18:14 2013  
From: rbsingl at ilstu.edu (Singley, Rodger)  
Date: Tue, 22 Oct 2013 01:18:14 +0000  
Subject: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?  
In-Reply-To: <EB0AEFF9F4AF42AE92030621BD744F16@CompaqSR5710F>  
References: <1DD0BFBC21BE430B99D05C7B8EBB25A0@CompaqSR5710F>  
<EB0AEFF9F4AF42AE92030621BD744F16@CompaqSR5710F>  
Message-ID: <0DEBF1C8D8437248BE53CD4213B89BD322F1575E@ISUEMBX02.ad.ilstu.edu>

Dave,

As I recall P&H ran over 1,000 volts on modified 1625 tubes (suppressor lead separated from cathode so they could run grounded grid) used in their grounded grid amplifiers. This was done when 1625 tubes were cheap and plentiful but they died from heat and not high voltage. The original LA-400 was rated for 400 watts (using 4 tubes) and the later versions upped that rating to 800 watts. So your 1625 tubes should live as long as you don't greatly exceed the power rating.

Good luck with the BC-375. I always wanted to try one but the high prices of the tubes scared me away. In the old Radio and Television News surplus ads the BC-375 tubes were available for less than \$1 :(

Rodger WQ9E

Dr. Rodger B. Singley  
Professor of Marketing

> -----Original Message-----  
> From: BoatAnchors [mailto:boatanchors-bounces at theporch.com] On Behalf  
> Of David Stinson  
> Sent: Monday, October 21, 2013 8:09 PM  
> To: boatanchors at mailman.qth.net  
> Cc: boatanchors at theporch.com  
> Subject: Re: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?  
>  
> Sorry- not enough info. I'm not an old TV person, so not familiar with

> what's what in Sweeps.  
> I'm "noodling" a way to get all those dead, tubeless BC-375s "lit-off."  
> First, going to try 1625s, but not at full B+.  
> Looking for something that won't melt under the dynamotor's 1000 Volts.  
>  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From w7qho at aol.com Mon Oct 21 21:39:22 2013  
From: w7qho at aol.com (mac)  
Date: Mon, 21 Oct 2013 18:39:22 -0700  
Subject: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?  
In-Reply-To: <0DEBF1C8D8437248BE53CD4213B89BD322F1574A@ISUEMBX02.ad.ilstu.edu>  
References: <1DD0BFBC21BE430B99D05C7B8EBB25A0@CompaqSR5710F>  
<0DEBF1C8D8437248BE53CD4213B89BD322F1574A@ISUEMBX02.ad.ilstu.edu>  
Message-ID: <2124C9E4-A52E-498F-943C-AB36EF2A1526@aol.com>

SSB linear service, tune up QUICKLY! Don't try to run the listed tubes at the listed voltages plate modulated class C....

Dennis D. W7QH0  
Glendale, CA

\*\*\*\*\*

On Oct 21, 2013, at 6:12 PM, Singley, Rodger wrote:

> Dave,  
>  
> Kenwood runs about 1400 volts on the 6LQ6 tubes in the TL-911 and  
> Yaesu uses 1250 volts on the 6KD6 tubes in the FL-2500. I have both  
> amps and the tubes live a long life when properly tuned.  
>  
> Rodger WQ9E  
>  
> Dr. Rodger B. Singley  
> Professor of Marketing  
>  
>

From rbsing1 at ilstu.edu Mon Oct 21 22:06:05 2013  
From: rbsing1 at ilstu.edu (Singley, Rodger)  
Date: Tue, 22 Oct 2013 02:06:05 +0000  
Subject: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?



In-Reply-To: <2124C9E4-A52E-498F-943C-AB36EF2A1526@aol.com>  
References: <1DD0BFBC21BE430B99D05C7B8EBB25A0@CompaqSR5710F>  
<0DEBF1C8D8437248BE53CD4213B89BD322F1574A@ISUEMBX02.ad.ilstu.edu>  
<2124C9E4-A52E-498F-943C-AB36EF2A1526@aol.com>  
Message-ID: <0DEBF1C8D8437248BE53CD4213B89BD322F15794@ISUEMBX02.ad.ilstu.edu>

I imagine class C modulated service is still going to be mostly a power input with associated heat/dissipation issue. Keeping grid current to a safe level is also critical. RCA rated the 6KD6 for 5,000 volts maximum pulsed plate voltage and the 6LQ6 carries the same rating so flashover won't be an issue. But excessive plate and/or grid (both control and screen) dissipation will kill them quickly.

I believe that excessive screen dissipation comes in second only to excessive power input/slow tune-up as the killer of sweep tubes in ham gear. I think a lot of well meaning owners try to increase tube life by reducing input power via reduced loading which only results in excessive screen dissipation. The proper method is to load to rated output and then reduce mic gain (or drive in CW) to reach a tube saving power level.

Rodger WQ9E

Dr. Rodger B. Singley  
Professor of Marketing

> -----Original Message-----  
> From: mac [mailto:w7qho at aol.com]  
> Sent: Monday, October 21, 2013 8:39 PM  
> To: Singley, Rodger  
> Cc: David Stinson; boatanchors at theporch.com  
> Subject: Re: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?  
>  
> SSB linear service, tune up QUICKLY! Don't try to run the listed  
> tubes at the listed voltages plate modulated class C....  
>  
> Dennis D. W7QH0  
> Glendale, CA  
>  
> \*\*\*\*\*  
> On Oct 21, 2013, at 6:12 PM, Singley, Rodger wrote:  
>  
> > Dave,  
> >  
> > Kenwood runs about 1400 volts on the 6LQ6 tubes in the TL-911 and  
> > Yaesu uses 1250 volts on the 6KD6 tubes in the FL-2500. I have both  
> > amps and the tubes live a long life when properly tuned.  
> >  
> > Rodger WQ9E

> >  
> > Dr. Rodger B. Singley  
> > Professor of Marketing  
> >  
> >

From infomet at embarqmail.com Mon Oct 21 22:12:27 2013  
From: infomet at embarqmail.com (Wilson)  
Date: Mon, 21 Oct 2013 22:12:27 -0400  
Subject: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?  
In-Reply-To: <1DD0BFBC21BE430B99D05C7B8EBB25A0@CompaqSR5710F>  
References: <1DD0BFBC21BE430B99D05C7B8EBB25A0@CompaqSR5710F>  
Message-ID: <29FD2B36CADF41E28FE5F3130E59A755@WilsonPC>

I'd put an 811A in the PA slot and drive it with a modern xcvr of some sort.  
You might even put an 811 in the osc slot and connect it in parallel with  
the PA.

Then a pair of 811s in the mod.

Sweep tubes aren't worth the trouble.

If you could find some dead tubes, you could make adapters from their bases.  
I just gave away a dead 838, but there are many 8008/872 etc, if you look  
around.

Have you read the great stuff from

[http://www.radioblvd.com/using\\_the\\_bc375e\\_today.htm?](http://www.radioblvd.com/using_the_bc375e_today.htm?)

Wilson

W4BOH

-----Original Message-----

From: David Stinson

Sent: Monday, October 21, 2013 8:54 PM

To: boatanchors at mailman.qth.net

Cc: boatanchors at theporch.com

Subject: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?

Is there such a thing as a sweep tube that can handle 1000 Volts  
on the plate? Best if it has 10 to 14 Volt filament, but will work  
with other voltages.

73 DE Dave AB5S

From arc5 at ix.netcom.com Tue Oct 22 07:29:56 2013  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Tue, 22 Oct 2013 06:29:56 -0500

Subject: [BoatAnchors] Your Morning Giggle  
Message-ID: <622816676ED644C496BC2FEE75F502F6@CompaqSR5710F>

Check out the descriptive terms under each tube graphic  
in this 6L6 "listening comparison:"

<http://www.tubesandmore.com/node/9976>

"This tube has a straightforward, focused tone  
with an emphasis on highs for sizzling leads." ;-)

From arc5 at ix.netcom.com Tue Oct 22 06:36:23 2013  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Tue, 22 Oct 2013 05:36:23 -0500  
Subject: [BoatAnchors] Why "Noodling" About Sweep Tubes?  
Message-ID: <1F75AF952F2F4B428C4B692CE5005830@CompaqSR5710F>

Some people have asked why I'm thinking about sweep tubes and  
the BC-375. I do use 211s in my personal rig.  
However, there are a lot of 375s sitting around because 211s  
have become so expensive. The least expensive I've seen are  
the Sino chinese, which are going about \$75 each.  
\$300 to get the old beast going is too much to ask for most people.

Worse- I finally got around to testing the big stash of 211 tubes  
I've been accumulating for years. Much more than half of them  
were bad- most from gas. Of the few that remain, some are  
low-emission and will work only in the oscillator stage.  
This much-reduced stash is going to have to last,  
since 211 prices aren't likely to come down.  
So I'm trying to find an affordable substitute, not only to "stretch"  
my tube supply, but in hopes we can get some of those 375s  
off the garage floor and back among the living.

Sweep tubes with less-popular filament voltages, like between 10-14,  
are not nearly as expensive. They are good for high voltages and currents.  
But I don't know enough about them to "narrow the field."  
Thus, my appeal to the group's wisdom and experience.

Did something similar to this with the SCR-183 transmitters-  
another one that is too expensive for most to use original tubes.  
Mounted some little audio pentodes (triode connected) in socket adaptors  
and it worked well. Hoping for similar success with the 375.

73 DE Dave AB5S

From knjhanlon at msn.com Tue Oct 22 14:02:12 2013  
From: knjhanlon at msn.com (JAMES HANLON)  
Date: Tue, 22 Oct 2013 12:02:12 -0600  
Subject: [BoatAnchors] "Sweep Tube" That Can Handle 1 KV on Plate?  
Message-ID: <BLU173-W2EF87E372C5B6373FEFA0A0020@phx.gbl>

Dave,

The BC-375 used a single 211 in the oscillator, a single 211 in the RF amplifier, and a pair of 211s in the Modulator as I recall and a 10Y as the audio preamp. The 211 is a triode with 100 watts of plate dissipation and an amplification factor of 12. I suggest you consider a more modern triode with similar characteristics for a replacement. For example, the 812-A has 65 watts of plate dissipation and an amplification factor of 29.

The ARRL Handbook rating for a 211 running in Class C, telephony service is: plate voltage 1000, plate current 150 ma, grid voltage -260, grid current 35 ma, grid drive power 14 watts. The rating for a 812-A running Class C, telephony service is: plate voltage 1250, plate current 140 ma, grid voltage -115, grid current 35 ma, grid drive power 7.6 watts. An 812-A would be a lot closer match to the original 211 than any sweep tube, and because of that it should be a much better match to the rest of the circuitry in the transmitter.

You can acquire a new, Chinese-made 812-A from Antique Electronic Supply, [www.tubesandmore.com/](http://www.tubesandmore.com/), for \$23. You could get a new, Chinese 811-A, similar to the 812-A but with an amplification factor of 160, for \$20.

I can't come up with a substitute for a 10Y that might be more easily obtainable other than perhaps an 801. But you could build up a more modern speech amplifier that would drive a pair of 811-As or 812-As.

By the way, AES lists new 211/VT-4C tubes for \$262.45 and used ones for \$137.40.

Good luck!

Jim, W8KGI

From gumbear at pacbell.net Tue Oct 22 21:22:29 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Tue, 22 Oct 2013 18:22:29 -0700  
Subject: [BoatAnchors] Why "Noodling" About Sweep Tubes?  
References: <1F75AF952F2F4B428C4B692CE5005830@CompaqSR5710F>  
Message-ID: <003d01cecf8e\$5a4a7da0\$4301a8c0@KB6NAX>

> Some people have asked why I'm thinking about sweep tubes and the BC-375. ....

The virtue of a 6146 as compared to a 6LQ6 is, for example, the 6146 will put up with the abuse of a mistuned plate tank without instantly melting down. And so it is with RF power amplifier tubes in general. Sweep tubes have little reserve for handling overloads due to their application as fixed function tubes, there being no knob to tune up the TV sweep circuit for maximum smoke. That said, sweep tubes can serve as reliable RF power amplifiers if unfailing measures are taken to avoid the accidental overload condition, an un-resonated plate tank, a improperly preset loading control, a suddenly disconnected transmission line, etc. For those who don't understand the difference between plate modulated class C grid rectification bias generation and class B linear fixed bias operation there will be plenty of ugly looking sweep tubes laying around the shack. To make things worse for the unsuspecting the interelectrode capacitances and lead inductances of sweep tubes are not well controlled for RF operation. A pair of GE sweepers, for example, in your Brand A rig will neutralize nicely but a pair of RCA tubes will be so squirrely you'll wonder where the nuts are hidden. So you buy more GE's and find they aren't worth a damn in your Brand B rig you just lovingly restored. OK, so you are warned.....

Arden Allen  
KB6NAX

I love a dog. He does nothing for political reasons.  
-Will Rogers

From gumbear at pacbell.net Tue Oct 22 21:22:10 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Tue, 22 Oct 2013 18:22:10 -0700  
Subject: [BoatAnchors] Your Morning Giggle  
References: <622816676ED644C496BC2FEE75F502F6@CompaqSR5710F>  
Message-ID: <003c01cecf8e\$59cbb0b0\$4301a8c0@KB6NAX>

> Check out the descriptive terms under each tube graphic  
in this 6L6 "listening comparison:"

> <http://www.tubesandmore.com/node/9976>

It's all nonsense. Like comparing all automobiles based on they're having six cylinder engines. What is needed is a 6L6GC with built in tone controls so that we can buy only one and get happy.

Arden Allen  
KB6NAX

It would be a horrible world if everything was on two legs.  
-Cleveland Amory

From bill at iaxs.net Wed Oct 23 04:54:14 2013  
From: bill at iaxs.net (Bill Hawkins)  
Date: Wed, 23 Oct 2013 03:54:14 -0500  
Subject: [BoatAnchors] Your Morning Giggle  
In-Reply-To: <003c01cecf8e\$59cbb0b0\$4301a8c0@KB6NAX>  
References: <622816676ED644C496BC2FEE75F502F6@CompaqSR5710F>  
<003c01cecf8e\$59cbb0b0\$4301a8c0@KB6NAX>  
Message-ID: <83DDCD62BBB645618F1BC9DB6884449B@system072>

Arden,

I'm not giggling, but then it's 3:30 AM and insomnia leads me to read mail.

It's another triumph of form over function, like PC over education.

First, observe that the frequency response is completely set by the output transformer and speaker, with no feedback.  
The tubes carry electrons the same way over the audio range, except near cutoff, but no mention is made of this.  
The plots differ only in gain, but elicit different words from a musician who has been deafened by max volume over the years.

Second, the test circuit is biased for 52 milliamps at the cathode, if the circuit values are correct.  
The bias may be set at -34 volts and the cathode current allowed to vary, but the tube is selected near cutoff.  
Perhaps this is useful for maximizing distortion in a tube amp, to get those amazing harmonics in the sound.

Not that we expected any science from audiophile sales people, but the test setup could have been explained more clearly.

Yours for more natural than supernatural,  
Bill Hawkins

-----Original Message-----

From: Arden Allen  
Sent: Tuesday, October 22, 2013 8:22 PM

> Check out the descriptive terms under each tube graphic  
in this 6L6 "listening comparison:"

> <http://www.tubesandmore.com/node/9976>

It's all nonsense. Like comparing all automobiles based on they're having six cylinder engines. What is needed is a 6L6GC with buit in tone controls so that we can buy only one and get happy.

Arden Allen  
KB6NAX

From arc5 at ix.netcom.com Wed Oct 23 07:54:38 2013  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Wed, 23 Oct 2013 06:54:38 -0500  
Subject: [BoatAnchors] "Sweep Tube" 211 Substitute.  
Message-ID: <30DE166352DE452594106E1885FC2037@CompaqSR5710F>

Thank you all for the excellent information and suggestions.  
I'm only replacing two at this time- the MO and PA.  
Will address the modulators separately.

The point of this "winter project" is to find an affordable set of tubes for that silent and cold 375 sitting in your garden shed.

Decided to try these iterations:  
1625  
811  
Sweep Tubes (still deciding which ones)  
1626 ( low B+, QRP version)

Since the idea is to get as many 375s ressurected as possible, I won't be using the dynamotor, which most people don't have or won't want to use ( I can't imagine why ;-).  
All will be with a small 24 VDC supply for fils and relay and a variable B+ supply, up to 1 KV.  
Will let you know how it works out.

Thanks again for being a great group!  
73 OM DE Dave AB5S

From spr at earthlink.net Wed Oct 23 11:23:41 2013  
From: spr at earthlink.net (Scott Robinson)  
Date: Wed, 23 Oct 2013 08:23:41 -0700  
Subject: [BoatAnchors] Your Morning Giggle  
In-Reply-To: <83DDCD62BBB645618F1BC9DB6884449B@system072>  
References: <622816676ED644C496BC2FEE75F502F6@CompaqSR5710F>

<003c01cecf8e\$59cbb0b0\$4301a8c0@KB6NAX>  
<83DDCD62BBB645618F1BC9DB6884449B@system072>  
Message-ID: <5267E9FD.9060407@earthlink.net>

Folks,

The worst piece of audiophoole BS I have \*ever\* read was in a British audio magazine. The mag contained an ad for special line cords, yes, the wire that goes from the wall to your, for instance, power amp. These were oxygen free copper and all that, and cost--are you sitting down--400 pounds, or about \$600!

Worse yet, the magazine also contained a review of these line cords (or mains leads, if you like) which claimed that installation of this product immediately tightened up the bass, even though it was supposed to have full effect only after it had broken in for two weeks.

This makes Monster Cable look almost like reality...and clearly a Phooole and his money are soon separated.

So, Scott's engineering based remarks about speaker wire: thicker is better. If it worries you and you have a separate power amp, move the amp across the room to be closer to the speakers.

I once did a calculation of the effect of AC versus DC resistance for a 30 foot (16 or 12 gauge, I forget which) cable from amp to 4 ohm speaker. The result was a 0,25 dB loss at 20 kHz. Move your head an inch or so, and you'll get a much greater change than that. If you like, equalize it with an R-C network.

Yours for clear, delightful reality-based audio,

/scott

From 4cx250b at miamioh.edu Wed Oct 23 20:28:07 2013  
From: 4cx250b at miamioh.edu (MU 4CX250B)  
Date: Wed, 23 Oct 2013 18:28:07 -0600  
Subject: [BoatAnchors] Your Morning Giggle  
In-Reply-To: <5267E9FD.9060407@earthlink.net>  
References: <622816676ED644C496BC2FEE75F502F6@CompaqSR5710F>  
<003c01cecf8e\$59cbb0b0\$4301a8c0@KB6NAX>  
<83DDCD62BBB645618F1BC9DB6884449B@system072>  
<5267E9FD.9060407@earthlink.net>  
Message-ID: <3730530467151643045@unknownmsgid>

\$600 for a power cord ain't nuthin! Check out "Pranawire"--  
"Whether selecting PranaWire's Cosmos with its 24 individual layers of



insulating material or our flagship Avatar with its fine silver core and 51 drain point quad copper encapsulation shield, you can be certain that every detail has been meticulously engineered, tested and executed." Price for a power cord: \$15,000.

Sent from my iPhone

> On Oct 23, 2013, at 1:52 PM, Scott Robinson <spr at earthlink.net> wrote:

>

> Folks,

>

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>

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>

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>

> Yours for clear, delightful reality-based audio,

>

> /scott

>

> -----  
> BoatAnchors mailing list

> BoatAnchors at theporch.com

> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From gumbear at pacbell.net Thu Oct 24 00:28:19 2013

From: gumbear at pacbell.net (Arden Allen)

Date: Wed, 23 Oct 2013 21:28:19 -0700

Subject: [BoatAnchors] Your Morning Giggle

References: <622816676ED644C496BC2FEE75F502F6@CompaqSR5710F>

<003c01cecf8e\$59cbb0b0\$4301a8c0@KB6NAX>

<83DDCD62BBB645618F1BC9DB6884449B@system072> <5267E9FD.9060407@earthlink.net>  
<3730530467151643045@unknownmsgid>  
Message-ID: <000701ced071\$7d8e6950\$4301a8c0@KB6NAX>

> \$600 for a power cord ain't nuthin! Check out "Pranawire"--  
"Whether selecting PranaWire's Cosmos with its 24 individual layers of insulating material or our flagship Avatar with its fine silver core and 51 drain point quad copper encapsulation shield, you can be certain that every detail has been meticulously engineered, tested and executed." Price for a power cord: \$15,000.

I have for sale Radidio Shaque 24 AWG speaker zip-along cord. Because if its relatively few strands of highly oxygenated and sulphur infused copper-zinc-lead-titanium alloy wire (custom product of China) it never causes electron spinout. Because of its confined signal channelization and freedom from kinks, tangles and knots, it avoids the sonic dissilution problem inherent in high flexibility overbuilt cables. Price per foot, \$5000.00.

Before it's gone, buy now!

.....back in my hole.....

From arc5 at ix.netcom.com Fri Oct 25 09:59:22 2013  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Fri, 25 Oct 2013 08:59:22 -0500  
Subject: [BoatAnchors] BC375 and Dave's Excellent Tube Adventure, Part One  
Message-ID: <10756F34E24143EC8447335D9E33E0E0@CompaqSR5710F>

375 and Dave's Excellent Tube Adventure, Part One  
OK... these two used 1625s are expendable so let's push this thing.  
But the beam plates are connected to the cathode inside.  
Won't that keep it from working? Who knows.... we'll find out.  
Change the bias? No way. Any irreversable circuit change  
is absolutlely forbidden. If it doesn't work, it doesn't work.

Time to mount the 1625 sockets in the 211 bases.  
Tie cathode to pin 7....  
Plate lead with parasitic choke to screen on pin 3.  
Grid to pin 4..... man, that's close to the plate lead.  
Better dress that as far away in the 211 base as possible....  
There! Two of them ready to go.

First- I'll tune-up the rig on 3890 KC with the 211s so  
I'll be somewhere close. 70 Watts out. Good.  
Off with the power and in with the 1625s.

My primary supply is 27 volts... Switch the Primary Source switch inside the rig to "24" Volts and, since the fil current is different, that gives me something close to the 12 volts. Nice, red heaters!

(Angle on my sholder; "But that's 1000 Volts on the plates, boy!")  
Hmph, David! Is you a man or is you a mouse?  
Go for the gusto!  
If it blows-up, you can do like a government contractor; Hide it!  
.....(cring...) \*CLICK!\*..... 70 watts out.  
(un-Click)..... hmmm.....  
\*CLICK!\*..... 70 watts out. No red plates.  
No smoke. No fireworks. Hmmm!  
OK.... OK.... Let's see about neutralizing.  
Switched to "voice" (Angel on my sholder:  
"Wait you dummy! Don't you know about  
plate modulation?? You're really pushing your luck!").

"Fortune favors the foolish!" \*CLICK!\*  
..... (whisper...) "hello? hello test?" Audio,  
but FMinG, of course. Needs to be neutralized.  
"Hello hello..." (fiddle fiddle...) "hello hellooooo"  
(fiddle fiddle fiddle) .... getting "cocky"...  
"hellloooooo HELL000000....HELL.." "\*\*B000M!!\*\*"  
(flash flash sizzle sizzle.... as one 1625 takes wing to Tube Heaven...).

ummm.... so.... I guess I should write this up and tell everyone  
how it's gone so far, right?  
Even if it does make me look like a D00FUSS, right??  
Naaaaaaaaaaaaa!  
73 OM DE Dave AB5S

From w5sum at comcast.net Fri Oct 25 13:33:33 2013  
From: w5sum at comcast.net (Ronnie Hull)  
Date: Fri, 25 Oct 2013 12:33:33 -0500  
Subject: [BoatAnchors] BC375 and Dave's Excellent Tube Adventure,  
Part One  
In-Reply-To: <10756F34E24143EC8447335D9E33E0E0@CompaqSR5710F>  
References: <10756F34E24143EC8447335D9E33E0E0@CompaqSR5710F>  
Message-ID: <D3A2A22B-20D3-44F4-8152-DF8B2035B695@comcast.net>

You DESTROYED a 1625? BLASPHEME!

Sent from Ronnie's iPhone

> On Oct 25, 2013, at 8:59 AM, "David Stinson" <arc5 at ix.netcom.com> wrote:  
>  
> 375 and Dave's Excellent Tube Adventure, Part One

> OK... these two used 1625s are expendable so let's push this thing.  
> But the beam plates are connected to the cathode inside. Won't that keep it from working? Who knows.... we'll find out.  
> Change the bias? No way. Any irreversible circuit change is absolutely forbidden. If it doesn't work, it doesn't work.  
>  
> Time to mount the 1625 sockets in the 211 bases.  
> Tie cathode to pin 7.... Plate lead with parasitic choke to screen on pin 3.  
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> My primary supply is 27 volts... Switch the Primary Source switch  
> inside the rig to "24" Volts and, since the fil current is different,  
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>  
> (Angle on my sholder; "But that's 1000 Volts on the plates, boy!")  
> Hmph, David! Is you a man or is you a mouse?  
> Go for the gusto! If it blows-up, you can do like a government contractor; Hide it!  
> .....(cring...) \*CLICK!\*..... 70 watts out.  
> (un-Click)..... hmmm.....  
> \*CLICK!\*..... 70 watts out. No red plates. No smoke. No fireworks. Hmmm! OK.... OK.... Let's see about neutralizing.  
> Switched to "voice" (Angel on my sholder: "Wait you dummy! Don't you know about plate modulation?? You're really pushing your luck!").  
>  
> "Fortune favors the foolish!" \*CLICK!\*  
> ..... (whisper...) "hello? hello test?" Audio,  
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> "hellloooooo HELL000000....HELL.." "\*B000M!!\*"   
> (flash flash sizzle sizzle.... as one 1625 takes wing to Tube Heaven...).  
>  
> ummm.... so.... I guess I should write this up and tell everyone  
> how it's gone so far, right? Even if it does make me look like a DOOFUSS, right??  
> Naaaaaaaaaaaaa!  
> 73 OM DE Dave AB5S  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From garygarlic at earthlink.net Fri Oct 25 14:37:25 2013  
From: garygarlic at earthlink.net (Gary Woods)  
Date: Fri, 25 Oct 2013 14:37:25 -0400  
Subject: [BoatAnchors] BC375 and Dave's Excellent Tube Adventure,  
Part One  
In-Reply-To: <10756F34E24143EC8447335D9E33E0E0@CompaqSR5710F>  
References: <10756F34E24143EC8447335D9E33E0E0@CompaqSR5710F>  
Message-ID: <4hel695vjdtue1hqtvvs0d66l8vrnntccoe@4ax.com>

On Fri, 25 Oct 2013 08:59:22 -0500, you wrote:

>OK... these two used 1625s are expendable so let's push this thing.  
>But the beam plates are connected to the cathode inside.

IIRC, \_some\_ 1625s had the connection in the tube base, and somebody modded a buttload of them for linear amps (WRL?)

Dunno how you know which ones.

--

Gary Woods AKA K2AHC- PGP key on request, or at [home.earthlink.net/~garygarlic](http://home.earthlink.net/~garygarlic)  
Zone 5/4 in upstate New York, 1420' elevation. NY WO G

From anchor at ec.rr.com Sat Oct 26 11:58:27 2013  
From: anchor at ec.rr.com (Al Parker)  
Date: Sat, 26 Oct 2013 11:58:27 -0400  
Subject: [BoatAnchors] 5-legged Bridge Rectifier? Type KMS-101B Antenna  
Coupler  
Message-ID: <526BE6A3.2020606@ec.rr.com>

Hi Folks,

It's vintage SS, sort of boatanchorish - I'm wkg on an Antenna Coupler, made by Deco Communications, for, I think, Western Electric Co., or vice versa. It's Type KMS-101B. One antenna to 8 receivers, 2 stages of push-pull amps.

I do have a copy of the schematic, but it's cut off at the bottom of the bridge rectifier, which I have stupidly fried. The power supply gives 28vdc and 10vdc out, looks like the 10v is from a dropping resistor from the 28v line, but it also has some connection to the "bottom" end of the bridge, which is the missing area of the skem.

The bridge has 5 terminals, one of which, #4, goes to ground, the next one, #5, goes to the 10vdc line, the other 3 are conventional. It's a Solitron C 838 unit, and I can find nothing on it on the web. Right now the line that goes to the 10v output is shorted internally to the grounded leg, so there's no 10vdc output. What is inside between #4 & #5?

Any help greatly appreciated.

tnx, 73,

A1, W8UT  
www.boatanchors.org  
www.hammarlund.info

"There is nothing -- absolutely nothing -- half so much  
worth doing as simply messing about in boats"  
Ratty, to Mole

From arc5 at ix.netcom.com Sat Oct 26 12:45:42 2013  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Sat, 26 Oct 2013 11:45:42 -0500  
Subject: [BoatAnchors] BC375 and Dave's Excellent Tube Adventure, Part Two  
Message-ID: <41F141259168440580B97D7EC6598149@CompaqSR5710F>

(Posting this to non-military list because the idea of subbing expensive  
tubes  
may be of use to someone in a non-military rig one of these days)

Since I've satisfied the restless spirits of my Celtic  
and Confederate ancestors by a screaming, headlong-charge  
into this project (with the predictable heavy casualties),  
I decided that less bravo and more brain might be in order.  
(Ya think??)

Note: All this work with the 1625s is "proof of concept."  
I'm not building these assemblies to be permanent  
or I'd make them neater and more rigid.  
So don't laugh when you see the photos ;-)

Also- Yes; this is going to run at less than the specified  
70 or so Watts out. The point is not to get exactly the same output  
or the same performance as a set of 211s and a 10Y.  
The point is to get the transmitter working on-the-air  
with a set of tubes that cost \$20 instead of \*\$1000\*.

-----

I decided to back the B+ on the 1625s down to about 500 Volts  
and the screens down to something like "normal" for that B+.  
Since the BC-375 needs a "floating B-" and I don't want to build-up  
a new supply for a temporary experiment, I put a 5000 Ohm, 50 Watt  
dropping resistor in the B+ lead from the dynamotor and that worked.  
Installed 10 Kohm 5W resistor with a .004uFd 2KV cap across it  
from the plate pin to the 1625 screen (pin 3).  
This means the assembly is slightly taller than a regular 211,

and that means looong leads. So besides the parasitic suppressor in the 1625 plate lead, I installed a .25x.25 in. ferrite bead in the grid lead to help prevent parasitics. Here's a photo of the assembly before installing it in the 211 base  
(I did trim the leads shorter. Red is grid, green fils):

<http://home.netcom.com/~arc5/BC375/375-1625B.jpg>

When tuned-up with 211s in CW mode and the normal 1 KV B+, the set rans about 200 mils Plate current for 70 watts out. Running 500 B+ with these 1625s, I got just under 100 mils for about 23 Watts out. Neutralization was "touchy," but not very far at all from the proper setting for the 211s.

One thing that shows up quickly- any gas in the 1625 oscillator tube. Once a little of this ionized gas causes the tube to heat up, the gas starts swirling-around and the oscillator wanders all over the place. A good tube gave a solid note and as much stablility as could be expected with the oscillator tube on stilts ;-).

<http://home.netcom.com/~arc5/BC375/375-1625A.jpg>

The 211s in the modulator at 500 volts don't like these and don't modulate them well, but that's another problem I'll get to later. For now and for the primary mission- a working CW 375 rig, I think we're off to a good start.

73 OM DE Dave AB5S

From W0EOM at aol.com Sat Oct 26 14:00:04 2013  
From: W0EOM at aol.com (W0EOM at aol.com)  
Date: Sat, 26 Oct 2013 14:00:04 -0400 (EDT)  
Subject: [BoatAnchors] BC375 and Dave's Excellent Tube Adventure,  
Part Two  
Message-ID: <230a6.2f02fb0b.3f9d5d24@aol.com>

Dave - you remind me that when I arrived at the 46th FIS at Dover AFB in 1952, the BC-375 was our backup comm. xmtr. It was not the best of rigs even then, and i found that there was a BC-610 in supply. However, it was not on the approved list, so i got it for the MARS station which i established on the base.

I was an RO in the back seat of an F-94B and also assistant Comm. officer.

Will W3WVU at that time

In a message dated 10/26/2013 9:46:11 A.M. Pacific Daylight Time,  
arc5 at ix.netcom.com writes:

<http://home.netcom.com/~arc5/BC375/375-1625B.jpg>

From gumbear at pacbell.net Sat Oct 26 15:27:44 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Sat, 26 Oct 2013 12:27:44 -0700  
Subject: [BoatAnchors] 5-legged Bridge Rectifier? Type KMS-101B  
AntennaCoupler  
References: <526BE6A3.2020606@ec.rr.com>  
Message-ID: <001901ced282\$037c1cd0\$4301a8c0@KB6NAX>

> ....Any help greatly appreciated.

Al, forget the five terminal bridge thingy. Measure the output voltages of the unloaded transformer. Draw the schematic of the transformer and associated circuits. Verify by making resistance and voltage readings of the unloaded windings (five legged thingy out) The five legged thingy is a black box. Then allow your creative juices to well up. I'm thinking of an ordinary FW bridge plus a diode but I don't have the info to be sure what is needed. Build a kluge rectifier out of junk box diodes. Make sure the diodes have sufficient current ratings. Figure 1 amp for every 1000 uF of filter capacitance as a rough approximation. Be sure the power supply is properly fused. Bring the thing up on a variac and sniff for smoke. Good luck.

Arden Allen  
KB6NAX

Blessed is the person who has earned the love of an old dog.  
- Sydney Jeanne Seward

From bill at iaxs.net Sat Oct 26 17:05:50 2013  
From: bill at iaxs.net (Bill Hawkins)  
Date: Sat, 26 Oct 2013 16:05:50 -0500  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
In-Reply-To: <7D637C3573CF448F82D9BB4BDB669531@system072>  
References: <20131014.195253.31892.0@webmail14.vgs.unttd.com>



<7D637C3573CF448F82D9BB4BDB669531@system072>  
Message-ID: <F1219AA7F58B44079710CEC489865D1F@system072>

What happened with the HX-500?

I got one reply for the schematic, but the site is not working.

Bill Hawkins

-----Original Message-----

From: Bill Hawkins  
Sent: Monday, October 14, 2013 9:07 PM

The waveforms you show look like a blocking oscillator.  
Strong feedback is required, usually from a transformer winding.

Does the HX-500 audio have feedback from a winding on the modulation transformer? Is there any kind of feedback to the first audio tube?

Where can I get a HX-500 schematic?

Bill Hawkins

From anchor at ec.rr.com Sat Oct 26 20:37:28 2013  
From: anchor at ec.rr.com (Al Parker)  
Date: Sat, 26 Oct 2013 20:37:28 -0400  
Subject: [BoatAnchors] 5-legged Bridge Rectifier? Type KMS-101B  
AntennaCoupler  
In-Reply-To: <001901ced282\$037c1cd0\$4301a8c0@KB6NAX>  
References: <526BE6A3.2020606@ec.rr.com>  
<001901ced282\$037c1cd0\$4301a8c0@KB6NAX>  
Message-ID: <526C6048.3000103@ec.rr.com>

Hi Folks,

An update -- thanks to Al Tirevold I have a manual for the antenna coupler. That schem. shows a 4-legged bridge with an external 10v zener for the 10v supply. I can handle that easily. I didn't expect to find a replacement 5-legger, but wanted to know just what that extra component should be. Make sense now that I see it.

Thanks to Arden for suggesting a redesign. Fortunately that won't be totally needed, just a small change. I did totally redesign the p.s. secn in another coupler I have, made it much simpler and easy to understand. (and works fine) No schem. for that one.

73,

Al, W8UT  
www.boatanchors.org  
www.hammarlund.info

"There is nothing -- absolutely nothing -- half so much  
worth doing as simply messing about in boats"  
Ratty, to Mole

On 10/26/2013 3:27 PM, Arden Allen wrote:

>> ....Any help greatly appreciated.  
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> the unloaded transformer. Draw the schematic of the transformer and  
> associated circuits. Verify by making resistance and voltage readings of  
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> needed. Build a kluge rectifier out of junk box diodes. Make sure the  
> diodes have sufficient current ratings. Figure 1 amp for every 1000 uF of  
> filter capacitance as a rough approximation. Be sure the power supply is  
> properly fused. Bring the thing up on a variac and sniff for smoke. Good  
> luck.  
>  
> Arden Allen  
> KB6NAX  
>  
> Blessed is the person who has earned the love of an old dog.  
> - Sydney Jeanne Seward  
>  
>

From jharper at secureoutcomes.net Mon Oct 28 11:23:48 2013  
From: jharper at secureoutcomes.net (Jack Harper)  
Date: Mon, 28 Oct 2013 09:23:48 -0600  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
Message-ID: <mailman.48.1382979588.213.boatanchors@theporch.com>

Greetings to the List...

I continue to (slowly) work on the Hammarlund  
HX-500 transmitter and made some progress yesterday (Sunday).

As you may remember, the latest problem was a  
self-oscillation in the 12AX7 dual-stage speech  
amplifier. The thing gleefully oscillated by  
itself at about 4Khz with an amplitude of 150v or

so peak-to-peak with zero input.

The problem was a cracked/open 3.9K resistor inserted between pin-3 (cathode) and ground of the 12AX7 (V5A - first audio stage) installed by a previous owner at the recommendation of a Hammarlund published service bulletin to "Reduce Audio Distortion". Coming from the factory, the V5A cathode originally went direct to ground.

He also replaced, for unknown reasons, resistor R35 (should be 3.9K) with a 4.9K between the cathode of V5B - second audio stage - and ground, which I replaced with the correct 3.9K value.

The new 3.9K from the cathode of V5A to ground installed by the service bulletin runs direct from pins 3 and 9 (not used by the tube) and then ground and just barely fits between 3 and 9. I think that he grossly overheated the resistor when he soldered it in with blobby globs of solder. I removed the resistor and it literally fell apart in my hand.

Anyway, the speech amplifier with the new resistor now works fine: See <http://frobenius.com/HX-500-Transmitter-Speech-Amplifier-Output-200mv-20Khz-in.jpg> that shows 17v output with 200mv in at 20Khz. Output at 2Khz is 95v. There is no oscillation now with zero input.

Question: I notice that if I inject a 2v audio signal into the amplifier that I start to get clipping on the output. Am I correct that the typical microphone will generate something like 1v (I read that somewhere, I think)?? So, am I injecting a reasonable input signal at 200mv??? I don't have a microphone.

I ran the speech amplifier late last night with inputs from 400Hz up to 20Khz in steps to see what's what and plotted the results:  
<http://frobenius.com/HX-500-Speech-Amplifier.pdf> , which are interesting.

The plot shows measured db (black dots - left scale) and voltage output (red dots - right scale) over frequency - the gain of the amplifier

peaks at about 3Khz, which seems reasonable to me.

Question: All this makes sense to me - but, I do wonder at a 95-volt audio output. Does that make sense?? The output feeds into a 6CM7 modulator through a 1M-ohm potentiometer.

I must say, it has been extremely interesting to work on this HX-500. I have never really dived into such a complex piece of gear before - and am learning a lot, enjoying myself, and have only blown four 6A fuses so far :). I am getting closer to getting this rig back on the air...

As always, I appreciate comments from the Greybeards (and anyone else!).

Regards to the List -

Jack, W?YJ ("Friend to all Things Hammarlund - Even Transmitters!" :)  
Evergreen, Colorado USA

From anchor at ec.rr.com Mon Oct 28 13:36:09 2013  
From: anchor at ec.rr.com (Al Parker)  
Date: Mon, 28 Oct 2013 13:36:09 -0400  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
In-Reply-To: <mailman.48.1382979588.213.boatanchors@theporch.com>  
References: <mailman.48.1382979588.213.boatanchors@theporch.com>  
Message-ID: <526EA089.4060201@ec.rr.com>

Hi Jack,

Sounds like good progress, and good analyses. Your 200mv audio in is good, that's probably around "normal" for most mics. IIRC the D-104 puts out about that on peaks, maybe 250mv. Your plot looks good, dropping gradually off as freq. increases, and pretty flat in the voice 'communication' range of 300-2500 cps. Anything much above 3kc

won't/shouldn't get thru the IF filtering. 2v would way overdrive, as you saw.

Get a mike and put it on the air with the Vintage SB net some Sunday PM, we'd be glad to hear you, I'll have mine on if you let us know ahead. 73,

Al, W8UT

[www.boatanchors.org](http://www.boatanchors.org)

[www.hammarlund.info](http://www.hammarlund.info)

"There is nothing -- absolutely nothing -- half so much worth doing as simply messing about in boats"  
Ratty, to Mole

On 10/28/2013 11:23 AM, Jack Harper wrote:

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>

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> made some progress yesterday (Sunday).

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in.jpg

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> am learning a lot, enjoying myself, and have only blown four 6A fuses so
> far :). I am getting closer to getting this rig back on the air...
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> -----
> BoatAnchors mailing list
> BoatAnchors at theporch.com
```

> <https://minime.theporch.com/mailman/listinfo/boatanchors>  
>

From infomet at embarqmail.com Mon Oct 28 14:50:53 2013  
From: infomet at embarqmail.com (Wilson)  
Date: Mon, 28 Oct 2013 14:50:53 -0400  
Subject: [BoatAnchors] 5-legged Bridge Rectifier? Type KMS-101B  
AntennaCoupler  
In-Reply-To: <526BE6A3.2020606@ec.rr.com>  
References: <526BE6A3.2020606@ec.rr.com>  
Message-ID: <A590687E350C4E9EBB20070FFEF2C3F3@WilsonPC>

Hi Al,  
I saw a five legged elephant once...  
WL

-----Original Message-----

From: Al Parker  
Sent: Saturday, October 26, 2013 11:58 AM  
To: boatanchors at theporch.com  
Subject: [BoatAnchors] 5-legged Bridge Rectifier? Type KMS-101B  
AntennaCoupler

Hi Folks,  
It's vintage SS, sort of boatanchorish - I'm wkg on an Antenna Coupler, made by Deco Communications, for, I think, Western Electric Co., or vice versa. It's Type KMS-101B. One antenna to 8 receivers, 2 stages of push-pull amps.  
I do have a copy of the schematic, but it's cut off at the bottom of the bridge rectifier, which I have stupidly fried. The power supply gives 28vdc and 10vdc out, looks like the 10v is from a dropping resistor from the 28v line, but it also has some connection to the "bottom" end of the bridge, which is the missing area of the skem. The bridge has 5 terminals, one of which, #4, goes to ground, the next one, #5, goes to the 10vdc line, the other 3 are conventional. It's a Solitron C 838 unit, and I can find nothing on it on the web. Right now the line that goes to the 10v output is shorted internally to the grounded leg, so there's no 10vdc output. What is inside between #4 & #5? Any help greatly appreciated.  
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[www.hammarlund.info](http://www.hammarlund.info)

"There is nothing -- absolutely nothing -- half so much worth doing as simply messing about in boats"

Ratty, to Mole

From gumbear at pacbell.net Mon Oct 28 15:55:11 2013  
From: gumbear at pacbell.net (Arden Allen)  
Date: Mon, 28 Oct 2013 12:55:11 -0700  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
References: <mailman.48.1382979588.213.boatanchors@theporch.com>  
Message-ID: <002801ced417\$e4fd1290\$4301a8c0@KB6NAX>

> .....I removed the resistor and it literally fell apart in my hand.  
....Anyway, the speech amplifier with the new  
resistor now works fine: .....

I have run into similar problems with carbon comp resistors on occasion. My theory is that when the clay-carbon element becomes discomboobilated (official IEEE engineering term) the resistor can exhibit non-linear characteristics, including negative resistance that can propel an amplifier into oscillation. Good find, Jack.

Arden Allen  
KB6NAX

Adopt a shelter dog,  
save an innocent life,  
and make a friend forever =:-)

From johnmb at nc.rr.com Mon Oct 28 20:03:22 2013  
From: johnmb at nc.rr.com (john)  
Date: Mon, 28 Oct 2013 20:03:22 -0400  
Subject: [BoatAnchors] Hammarlund HX-500 Transmitter...  
In-Reply-To: <002801ced417\$e4fd1290\$4301a8c0@KB6NAX>  
References: <mailman.48.1382979588.213.boatanchors@theporch.com>  
<002801ced417\$e4fd1290\$4301a8c0@KB6NAX>  
Message-ID: <6.2.1.2.2.20131028200158.03f562f0@pop-server.nc.rr.com>

I found exactly the same issue with a CC in my Eldico 6100. No sign of electrical overstress or mechanical stress, just a very old fracture clean thru the resistor body.

John K5MO

At 03:55 PM 10/28/2013, Arden Allen wrote:



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>resistor now works fine: .....  
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>-----  
>BoatAnchors mailing list  
>BoatAnchors at theporch.com  
><https://minime.theporch.com/mailman/listinfo/boatanchors>

III

From landn2 at frontier.com Mon Oct 28 23:52:21 2013  
From: landn2 at frontier.com (Liles and Naomi Garcia)  
Date: Mon, 28 Oct 2013 20:52:21 -0700  
Subject: [BoatAnchors] RME-69/DB-20 Receiver Sighting  
Message-ID: <OBEDKFDGHEPDGADPPEHFGEIDEHAA.landn2@frontier.com>

Good evening Everybody,

I was at the ARES Swaptoberfest in Rickreall, Oregon this past Saturday. There were not a whole lot of big boatanchors there, but there were some. I saw an RME-69/DB-20 receiver with original trapezoidal speaker there. I have seen these in books and on the Internet; but in real life, these receivers are really big!! This radio was dusty and needed cleaning up, but it looked to be all complete and original. I was quite impressed by this radio!! It went home with a collector.

Did these radios come with two power cords and two power plugs? That is what this radio had.

Anyone have an idea of how rare these receivers are?

Best regards from Aloha, Oregon,

Liles Garcia  
landn2 at frontier.com

From rbsingl at ilstu.edu Tue Oct 29 07:37:42 2013  
From: rbsingl at ilstu.edu (Singley, Rodger)  
Date: Tue, 29 Oct 2013 11:37:42 +0000  
Subject: [BoatAnchors] RME-69/DB-20 Receiver Sighting  
In-Reply-To: <OBEDKFDGHEPDGADPPEHFGEIDEHAA.landn2@frontier.com>  
References: <OBEDKFDGHEPDGADPPEHFGEIDEHAA.landn2@frontier.com>  
Message-ID: <0DEBF1C8D8437248BE53CD4213B89BD322F270DA@ISUEMBX02.ad.ilstu.edu>

Hi Liles,

The RME-69 is pretty common, the DB-20 a little less so but still readily available. I have never seen either with two power cords but each has its own separate power supply along with an interconnecting lead from the preselector to the receiver.

The RME-9D (predecessor) is a bit less common and the original RME-9 is considerably more difficult to find.

Since I only live a short distance from the original RME site I have collected a lot of RME gear including a RME-9D, RME-69, RME-70 with built in DB-20, RME-99, RME-43, RME-45, RME-4300, RME-4350, RME-6900 and some odd prototype that bridges the gap between the RME-70 and production model 99.

The RME-70 with preselector built into the same cabinet is huge and I have one paired with a Hallicrafters HT-9 as my really wide AM station :)

Rodger WQ9E

Dr. Rodger B. Singley  
Professor of Marketing

> -----Original Message-----  
> From: BoatAnchors [mailto:boatanchors-bounces at theporch.com] On Behalf  
> Of Liles and Naomi Garcia  
> Sent: Monday, October 28, 2013 10:52 PM  
> To: boatanchors at minime.theporch.com  
> Subject: [BoatAnchors] RME-69/DB-20 Receiver Sighting  
>  
> Good evening Everybody,

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> is what this radio had.  
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> Anyone have an idea of how rare these receivers are?  
>  
> Best regards from Aloha, Oregon,  
> Liles Garcia  
> landn2 at frontier.com  
>  
>  
>  
>  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From landn2 at frontier.com Tue Oct 29 16:13:08 2013  
From: landn2 at frontier.com (Liles and Naomi Garcia)  
Date: Tue, 29 Oct 2013 13:13:08 -0700  
Subject: [BoatAnchors] More On RME -69/DB-20 Sighting  
Message-ID: <OBEDKFDGHEPDGADPPEHFMEIHEHAA.landn2@frontier.com>

Good afternoon Roy and All,

Roy, this receiver was all in one long box just like the one pictured in Moore's book. When you carry this radio, you would tuck it under your arm because passing through a normal-sized door would be a challenge. I really didn't even think about two units being bolted together.

I think that I have seen the trapezoidal speaker before, probably with an RME-69. Also, Roy, many thanks for your picture!! I also agree with you that I might never see another one of these receivers and/or speakers again.

Best,  
Liles  
landn2 at frontier.com

From listown at nanniandjack.com Wed Oct 30 16:28:51 2013  
From: listown at nanniandjack.com (Jack G F Hill)  
Date: Wed, 30 Oct 2013 15:28:51 -0500  
Subject: [BoatAnchors] Over quoting has become an issue  
Message-ID: <52716C03.9030005@nanniandjack.com>

Gang-

Almost 19 years ago I took on management of this amazing list. We agreed on several things about our list and did all we could to maintain the best signal to noise ratio on the internet...

We adopted the paradigm of a symposium, and in that model we recognized that repeating the totality of someone's post when adding a comment was wasteful, not so much in bandwidth (it was in those days) but in wasting the time and energy of the other "symposium" attendees. It made sense to quote ONLY those parts of a previous post that would be required to maintain context.

Lately we have strayed from that paradigm, and in an effort to return to the symposium paradigm, I have begun placing people who choose not to limit quoting of posts to which they are responding on a "moderate" status.

Some people, now being moderated, whose posts have been returned to them with a polite "Please limit the quoted post to which you are responding" request, are complaining: "Why me? Everyone else is doing it."

So, here it is: we continue with adding people to the moderate status or moderate the entire list until this gets corrected; or, we let everyone and everything in, spammers (about 60 a day that I go through and delete before they hit the list) and over-quoters and watch the list descend into anarchy and after more than 21 years of superior content and great cooperation and behavior, it dies a sorry and premature death.

It's up to you.

We are \*NOT\* going to discuss this on the list - one click is all it takes to set everyone's moderate status - your behavior will decide. Limit quoting to what is necessary to maintain context and cut out the footers, sig blocks, and other unnecessary parts, and the list continues as one of the finest resources on the internet... refuse to make the change and respect your fellow Boat Anchor enthusiasts and you can

descend into the swill and chaos... your choice.

I hope you swipe your mouse across what isn't needed before you click SEND.

--

Jack Hill, W4KH - BoatAnchors Listowner/Archiver listown at nanniandjack.com

"Plus ca change, plus c'est la meme chose"

"Il n'y a que les idiots qui ne changent jamais d'idee"

From arc5 at ix.netcom.com Thu Oct 31 12:05:46 2013

From: arc5 at ix.netcom.com (David Stinson)

Date: Thu, 31 Oct 2013 11:05:46 -0500

Subject: [BoatAnchors] DC-DC Buck/Boost Converter Regulation

Message-ID: <883E023EC4D448D58224D3C15DAC9B71@CompaqSR5710F>

I've been told that DC-DC Buck or Boost converters like these:

<http://www.ebay.com/itm/261316095061>

<http://www.ebay.com/itm/261318532314>

will regulate their outputs through wide input excursions

at least as well as something like an LM-317

(assuming one stays within the devices design limitations).

Can anyone here vouch for that?

73 D.S.

From gumbear at pacbell.net Thu Oct 31 17:20:15 2013

From: gumbear at pacbell.net (Arden Allen)

Date: Thu, 31 Oct 2013 14:20:15 -0700

Subject: [BoatAnchors] DC-DC Buck/Boost Converter Regulation

References: <883E023EC4D448D58224D3C15DAC9B71@CompaqSR5710F>

Message-ID: <001f01ced67f\$3f822ed0\$4301a8c0@KB6NAX>

> I've been told that DC-DC Buck or Boost converters like these:

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I don't think anyone can honestly vouch for a simple claim like those without knowing all the provisos involved. Best to get the mfr's data sheet of the controlling device and sort through the mumbo jumbo. At least the smaller unit lets you know what the chip is. Then you have to guess how the chip is used in a particular power supply design. I stay away from stuff that comes from u-no-where with no comprehensive spec sheet to review. But

then, what's fun money for anyway?

Arden Allen  
KB6NAX

Properly trained a man can be  
dog's best friend. -Corey Ford

From johnmb at nc.rr.com Thu Oct 31 19:19:17 2013  
From: johnmb at nc.rr.com (john)  
Date: Thu, 31 Oct 2013 19:19:17 -0400  
Subject: [BoatAnchors] 45,000 tubes for sale (Cragislist forward)  
Message-ID: <6.2.1.2.2.20131031191838.03f41630@pop-server.nc.rr.com>

<http://santabarbara.craigslist.org/ele/4116456462.html>

Tubes appear to be in Vegas.... feelin' lucky?

John

III